Paper
TRADE JOURNAL

JUNE 29, 1951

HOW DOES BATHURST OBTAIN MAXIMUM YIELD?
. . . See Page 19

WOOD PULP

G

Established 1886

A THOUGHT FOR INDEPENDENCE DAY

"Whoever would overthrow the liberty of a nation must begin by subduing the freedom of speech."
BENJAMIN FRANKLIN

In the present battle for the minds and hearts of men, freedom of speech plays a truly momentous role.

The papermakers of America have made possible an incredible flow of paper to carry the news, hopes and aspirations of a free people to one another and to all the rest of the world.

GOTTESMAN & COMPANY
— INCORPORATED —
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EUROPEAN OFFICES: Birger Jarlsgatan 8, Stockholm, Sweden

Strong, light, corrosion-resistant stock trucks of Armco Stainless Steel are shown here beside one of the old wooden trucks they replaced. Eye is for chain-hoist. Undercarriage detaches when emptying. *Inset:* Emptying stainless stock truck in rag beater.

STAINLESS stock trucks safeguard paper quality

Until recently a midwest paper mill used wooden stock trucks lined with galvanized sheets. But from constant use, rust particles and splinters from the trucks began to contaminate the stock. Paper quality and profits suffered.

Recently the mill switched to stock trucks made of Armco Stainless Steel. No longer is there danger of rust or wooden splinters down-grading the stock.

Operating costs have dropped sharply while time has been saved. Formerly it was necessary to unload stock by hand from heavy wooden trucks. Yet because of the high strength/weight ratio of stainless, it is now easy to unload a truck in one operation by chain-hoist dumping.

Armco Stainless stock trucks are lighter in weight, stronger, require less maintenance, and should last indefinitely.

Making Repair Jobs Last

In repair jobs too, Armco Stainless Steel has a reputation for cutting maintenance costs and improving equipment life.

For major repair work of all kinds your equipment manufacturer will be glad to do the job. But for those small repairs your mill men can handle, the Armco fabricating booklet, "Stainless Fabricating Tips," will give them the information they need. Write for a free copy.

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MORE SCRAP MEANS MORE STEEL
TURN YOURS IN TODAY!

"Whether there be Prophecies, They Shall Fail"

. . . those words, spoken by a redoubtable seer nearly 2000 years ago, have probably never been so pertinent as they are today. For today's most carefully computed prediction is liable to prove completely false tomorrow. *We* certainly are not attempting to prophesy anything, but are simply keeping "our noses to the grindstone," to provide the paper industry with quality chemicals . . . as we have done for years.

The pictures shown here join with our headline to emphasize this message we would leave with you: *Whatever the uncertainties ahead, you can do no better than call upon the experience, skills and facilities accumulated by Nopco*.*

One of the oldest and most reputable suppliers of paper processing materials, we are confident we can afford outstanding assistance to the pulp and paper industry as it goes to work today in the interests of national defense.

In the manufacture of paper board particularly—destined to play a major role in meeting the packaging needs of America's all-out defense effort—we believe we can be of special help. But whatever your product—paper, paper board, or insulating board—we are ready to make recommendations and supplement laboratory data with technical aid right in your mill.

Send us your specifications now. At the moment, we are prepared to supply you with defoamers, sizes, and all the other chemicals for which we are famous. It will remain our fixed policy to serve you to the best of our ability, *come what may.*

Nopco headquarters — Harrison, N. J.

A section of Nopco's paper laboratories

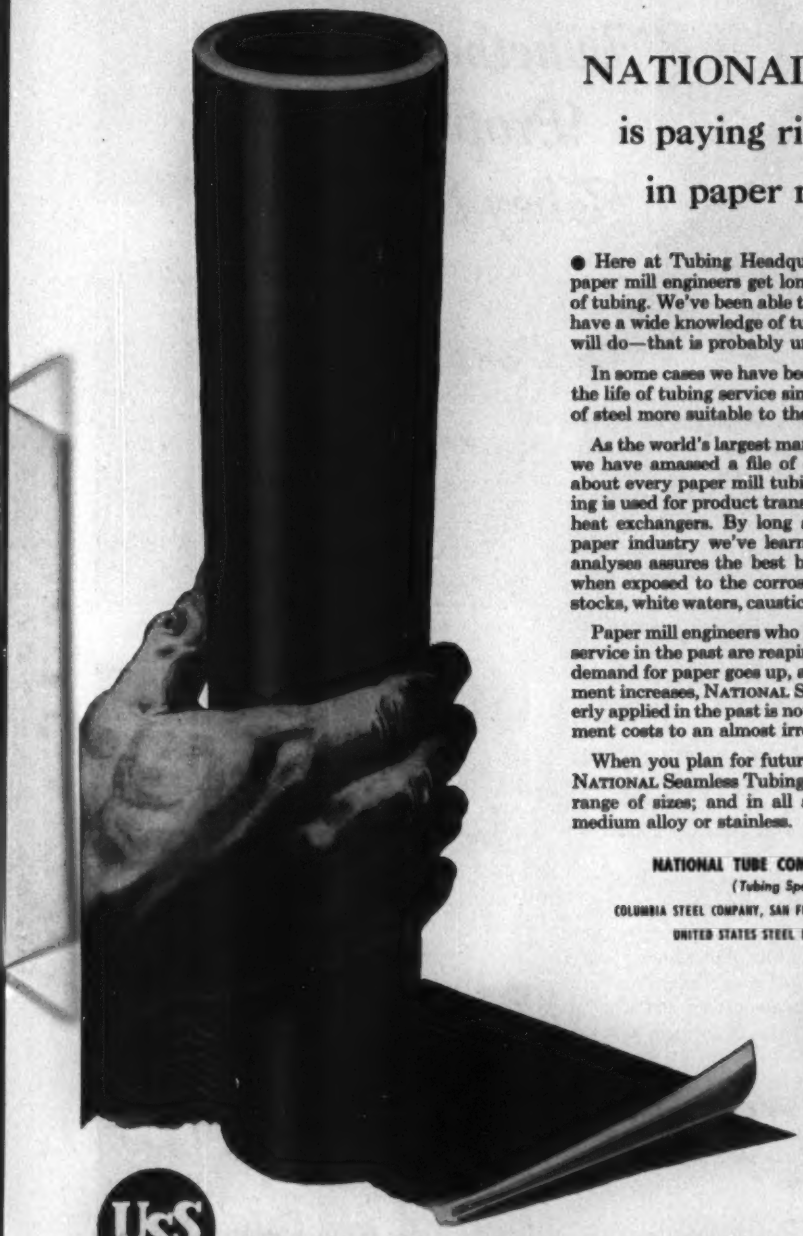
Applying paper coating mixture to hand sheet.

Testing to determine effectiveness of sizes.

NOPCO CHEMICAL COMPANY
HARRISON, NEW JERSEY
Branches: Boston, Chicago, Cedartown, Ga., Richmond, Calif.

*REG. U. S. PAT. OFF.

Because we fit the tubing to the job,



NATIONAL SEAMLESS
is paying rich dividends in paper mill service

● Here at Tubing Headquarters, we have helped many paper mill engineers get longer, more effective service out of tubing. We've been able to do this because our engineers have a wide knowledge of tubing analyses—and what they will do—that is probably unsurpassed anywhere.

In some cases we have been able to double or even triple the life of tubing service simply by recommending a grade of steel more suitable to the job.

As the world's largest manufacturer of tubular products, we have amassed a file of case histories that covers just about every paper mill tubing problem—whether the tubing is used for product transfer, evaporators, condensers or heat exchangers. By long association with the pulp and paper industry we've learned which of the various steel analyses assures the best buy, the best cost-service ratio when exposed to the corrosive action of pulps, paper mill stocks, white waters, caustic liquors, and cleaning solutions.

Paper mill engineers who have used our free consultation service in the past are reaping rich dividends today. As the demand for paper goes up, and the wear and tear on equipment increases, NATIONAL Seamless Tubing that was properly applied in the past is now holding down tubing replacement costs to an almost irreducible minimum.

When you plan for future construction, remember that NATIONAL Seamless Tubing is manufactured in a complete range of sizes; and in all analyses, whether low carbon, medium alloy or stainless.

NATIONAL TUBE COMPANY, PITTSBURGH, PA.
(Tubing Specialties Division)
COLUMBIA STEEL COMPANY, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

All National Seamless Tubing is pierced from a solid billet of high quality steel. This method of manufacture results in absolutely uniform wall strength, since there are no longitudinal welds to weaken the tube.

USS **NATIONAL *Seamless* PIPE AND TUBES**

UNITED STATES STEEL

Paper TRADE JOURNAL

VOL. 132 JUNE 29, 1951 No. 26

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NEXT WEEK

How Riegel uses quality control is outlined in "Quality Control as an Aid in the Manufacture of Glassine," by Donald Newcomb, Technical Control Director.

How one of West Virginia's plants reduced its yearly lost time accident rate from 89 to 3 in six years is told in "Safety Works," by James R. Shea, Sr., Manager of the Tyrone, Pa., mill.

REMEMBER THESE DATES

JULY 24: American Pulp & Paper Mill Superintendents Assn., Michigan Division, Annual Field and Sport Day, at the Kalamazoo Country Club, Kalamazoo, Mich.

SEPT. 6-8: American Pulp & Paper Mill Superintendents Assn., New York, Canadian Division, meeting at Saranac Inn, Saranac, N. Y.

SEPT. 14-15: American Pulp & Paper Mill Superintendents Assn., Northeastern Division, meeting at Poland Spring House, Poland Spring, Maine.

SEPT. 14-15: American Pulp & Paper Mill Superintendents Assn., Northwestern Division meeting at Northern Holiday Resort, Manesesco, Mich.

SEPT. 16-19: American Institute of Chemical Engineers, Regional Meeting, French Lick, Ind.

SEPT. 20: American Pulp & Paper Mill Superintendents Assn., Michigan Division, Fall Meeting at Hotel Harris, Kalamazoo, Mich.

OCT. 10-12: American Pulp & Paper Mill Superintendents Assn., Southern and Southeastern Div'n., George Washington Hotel, Jacksonville, Fla.

Oct. 29-31: National Foreign Trade Convention, Waldorf Astoria, New York City.

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in a modern mill

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HYDRAFINER DRIVE
HYDRAFINER TIMER
HYDRAFINER INDICATING AMMETER
HYDRAFINER RECORDING AMMETER
DUMP CHEST AGITATOR
DUMP CHEST PUMP
BACK LINER CHEST AGITATOR
BACK LINER DUMP PUMP
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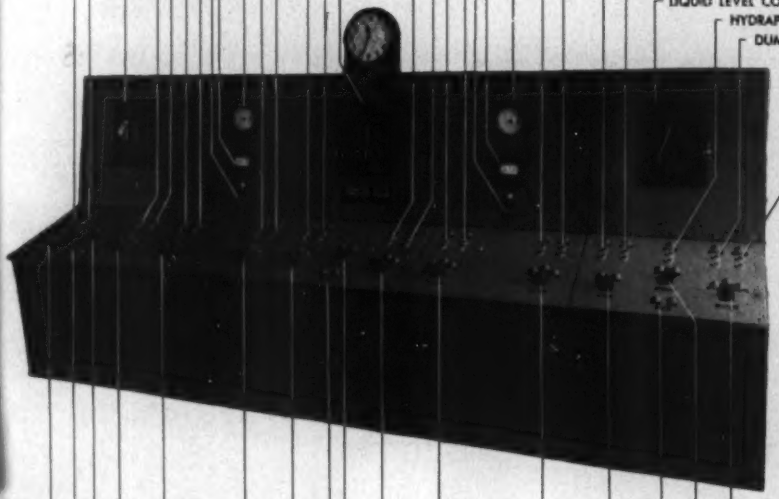

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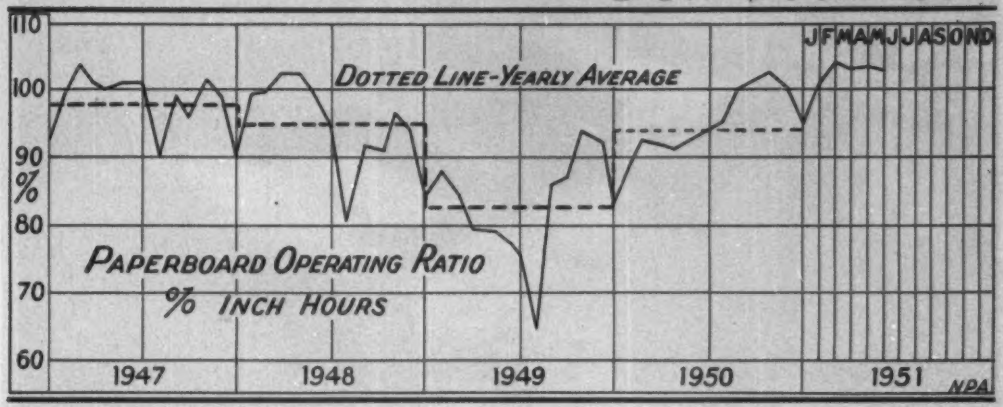
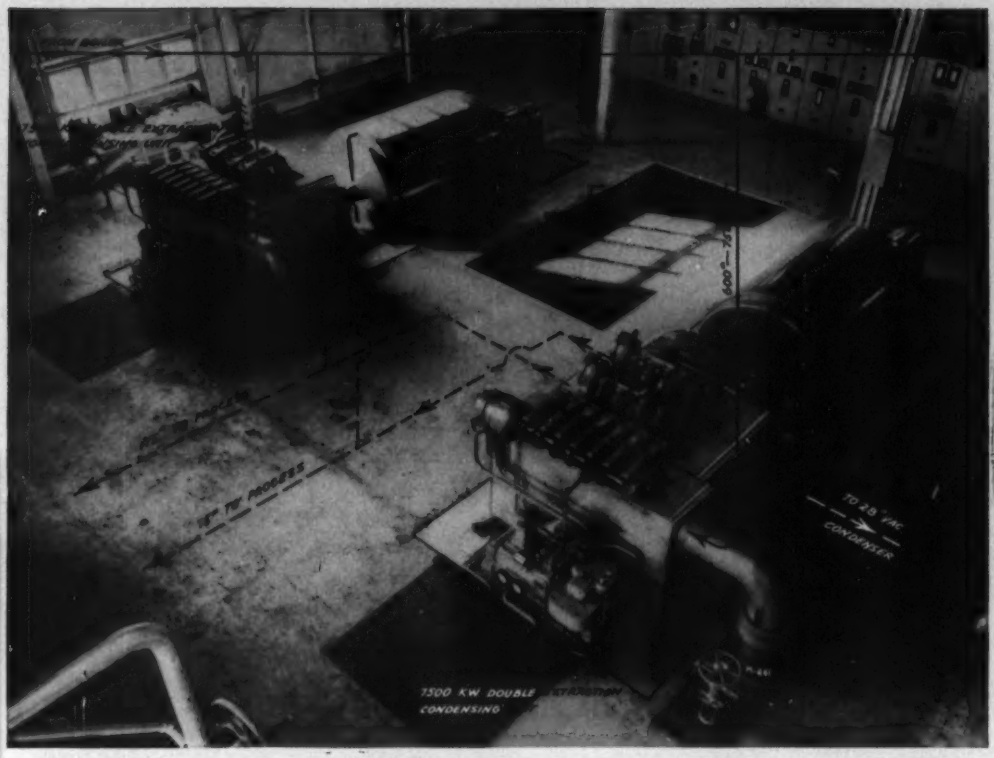
OUR BUSINESS



Weekly Brief of Important Figures

Source	Production	WEEK ENDING June 16, '51	May 19, '51	June 17, '50
APPA	Paper Production Percent Capacity[3]	101.9	103.0	97.3
	Unbl. Kraft Paper Production Percent	94.1	100.7	97.6
NPA	Paperboard Operating Ratio Percent Inch Hours	103	106	93
		Apr. 1951	**Mar. 1951x**	**Apr. 1950**
APPA	Paper Production[6] (Except Newsprint and Building Papers) Tons	831,500	911,574	774,000
	New Orders Tons	857,000	959,757	779,500
	Unfilled Orders Tons	964,636	932,996	543,100
	Shipments Tons	824,000	911,448	768,000
		[4]May 1951	**Apr. 1951**	**May 1950**
NPA	Paperboard Production Tons	1,251,633	1,006,972	934,600
	New Orders Tons	1,264,120	956,085	964,000
	Unfilled Orders Tons	658,722	646,878	395,500
	Our Customers Activities Index[1]	**Latest Mo.[5]**	**Previous Mo.[5]**	**Year Ago[5]**
FRS	Manufactures Total Index	231	230	197
	Durable Mfg. Index	275	275	221
	Nondurable Mfg. Index	195	194	178
	Chemical Products Index	299	296	253
	Mfg. Food Products Index	154	150	150
	Printing and Publishing Index	185	178	174
ODC	Magazine Advg.-Printer's Ink Index	338	343	327
	Retail Sales Combined Adjusted Index	341.1	342.3	309.8
	Drug Index	232.1	241.2	224.6
	General Merchandise Group Index	327.5	316.6	293.0
	Grocery and Combination Index	431.0	432.7	378.8
	Prices Index			
BLS	Consumers Price Index[1]	184.6	184.5	168.5
	Wholesale all Commodities[2]	183.5	184.0	152.9
	Wholesale Foods[2]	185.7	186.6	155.3
	Commodities other than Farm Products and Foods[2]	172.1	172.4	146.4
	Wholesale Pulp and Paper[2]	196.2	196.3	155.4
	Purchasing Power of Dollar, Consumers Prices[1]	54.2	54.2	59.3
	General Activity Index			
FRS	Mfg. Production-Worker Payroll	429.4	433.6	337.2
	Unemployment Compensation Initial Claims (M)	983	719	1,543
	Miscellaneous Carloadings-Thousands of Cars	1,580	1,979	1,434
	Electric Output (Million KW hr.)	34,431	36,172	30,191
PTJ	Average 32 P & P Common Stocks as of June 23	$37.26	$37.74	$34.05

[1] 1935-39=100 Unadjusted Index
[2] 1926=100
[3] New 6-7 day basis.
[4] For Five Weeks.
[5] For details see APPA Monthly Statistical Summary—April 1951 Estimated Figures
[6] Latest Month Available on Request
x Revised figures.



Process Steam Maintained at 2 Pressures

by Worthington Turbine Generators

This is how Worthington and a Far West cellulose mill set up the steam supply for utmost efficiency and flexibility.

We combined a non-condensing single automatic extraction unit with a condensing double automatic extraction unit. The 7500-kw units operate in parallel and, in addition to supplying plant power, furnish steam at two pressures for process requirements.

Along with the advantages of efficient operation and low cost and ability to adjust to mill requirements, this mill benefits from the manufacturer's *unit responsibility*.

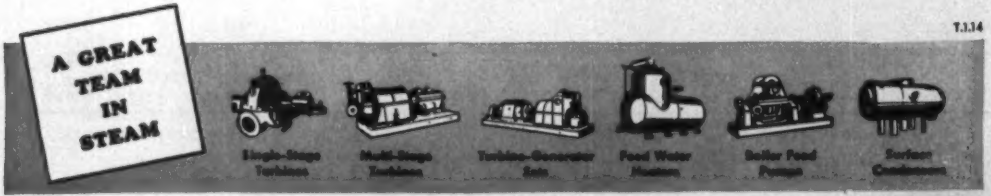
In this case, Worthington also furnished two 470-hp turbines to drive boiler feed pumps, two 452-hp turbines to drive induced-draft fans, two 146-hp turbines to drive forced-draft fans, and one 50-kw turbine-driven exciter set.

If you want proof *there's more worth in Worthington*, write Worthington Pump and Machinery Corporation, Steam Turbine Division, Wellsville, New York.

WORTHINGTON

STEAM TURBINE GENERATORS

T.J.14



Paper TRADE JOURNAL

TRENDS

Office of the PAPER TRADE JOURNAL,
Wednesday, June 27, 1951

Wood Pulp Ceilings Named

Release of the wood pulp pricing regulation (CPR 49) on June 25 set the ceiling for domestic standard grades at the level of December 19, 1950, to June 25, 1951, inclusive, using $140 for bleached sulfites as a base, and thereby effected a sizable rollback in the selling prices of some producers. The order is effective June 30, 1951.

Whether or not the order stands as issued is largely in the hands of the Senate and House Banking Committees who, at press time, were shaping up the new controls law. The Senate bill which would be effective for eight months forbids rollbacks beyond the price level of January 25 to February 24, 1951. The House bill would prohibit price rollbacks except on agricultural products. Congressional leaders believe the final bill is almost certain to include some ban on price rollbacks, and that the ban is likely to be broader than now suggested.

Unless some interim order is passed before the 30th, the requirements of CPR 49 become law.

Overseas Buying Ceilings

Ceiling prices for overseas pulps were set at buyer's level, and are said to represent "the lowest level of prices in effect for such pulps during the second quarter of 1951."

Standard grades of unbleached sulfates and sulfites were frozen by the order at $200 per short air dry ton, on dock Atlantic seaboard; standard bleached sulfites, $225; standard grades of bleached sulfates, $230.

Ceiling prices for special grades are to be in line with these prices.

The regulation requires that before buying such special grades of overseas wood pulp, the buyer shall report: (1) grade identification and trade name of pulp; (2) special characteristics; (3) name and address of overseas producer; (4) prices and terms of sale; (5) prices paid for same grades during the first and second calendar quarters of 1951 or during the most recent quarter in which purchases were made; (6) why prices proposed are held to be in line with the ceiling levels set.

U. S. Wood Pulp Ceilings

The price of $140 established for domestic bleached sulfite is, the order states, $22 higher than the price prevailing before Korea. "This should be sufficient to cover adequately all increases in manufacturing costs which have occurred since Korea."

To arrive at prices for other grades, historical differentials in price were applied, and costs of bleaching. Also a consideration was "the need for an increased supply of certain grades if the anticipated curtailment of imports occurs as a result of the rollback of prices of overseas wood pulp."

Section 6 of the order describes a method for establishing ceiling prices of special grades with the Office of Price Stabilization.

Ceiling Prices for U.S. Pulps

Bleached sulphite	$140.00
Unbleached sulphite	132.50
Bleached sulphate	145.00
Semi-bleached sulphate	140.00
Unbleached sulphate	132.50
Bleached soda pulp	145.00
Groundwood pulp	92.50
Sulphite screenings	72.50
Sulphate screenings	67.50
Groundwood screenings	60.00
Unbleached sulphate side-runs	132.50
Standard newsprint side-runs	92.50

Basic Transportation Allowances

Ceiling prices for U. S. sales are delivered consumer mill and include the basic maximum transportation allowance as stated in Section 5 of the order:

Area of production of domestic wood pulp	Air dry weight 50%	50-80%	Above 80%
Northeast	$16.00	$14.00	$11.00
Lake Central	16.00	14.00	11.00
Southern	20.00	18.00	15.00
West Coast	23.50	21.50	18.50

Canadian Govt. Assurances

No ceilings were established in the order for Canadian pulps because of assurances received from the Canadian Government that "no general increase will be authorized in the export price of Canadian wood pulp to the U. S. without prior consultation with the appropriate agencies of the U. S. Government. Under this arrangement, American buyers will continue to pay prices for Canadian woodpulp which, although higher than the prices for domestic wood pulps, will be substantially less than the ceiling prices for wood pulp from overseas countries."

Export Prices Established

By the order, export prices for domestic wood pulps were established at the domestic levels already named, save that the mills will absorb the amount of freight to the nearest port of export only.

Swedish Reaction Uncertain

Reaction of Swedish producers to the limits of the order have not been made clear as yet. It appears, however, that a little more moderate attitude is developing, and that at least a portion of the Swedish output may be available to this market at the ceilings established by the order.

Back of the shift in Swedish temper is seen the spoken intent to stay in this market and unwillingness to risk a break in world market prices.

U. S. agents await word from their principals as to what tonnages will be offered to regular customers at OPS ceiling prices.

Wood Pulp Set-Aside, M-72

Companion order to CPR 49 is the NPA order, M-72, which requires integrated mills to set aside three percent of their quarterly chemical wood pulp production to sell to non-integrated producers.

Scheduled for release today, M-72 also limits consumption of market chemical pulps by non-integrated mills to 95 percent of 1950's consumption, and limits their pulp inventories to 45 days.

Waste Paper Ceilings Next

Within the trade, it is held likely that the long-expected waste paper ceilings will follow on the heels of the wood pulp order. Draft of the order is said to await signature.

Salvage Drives in High Gear

Half of the waste-paper consuming mills will be shut down during the next week or two for vacations and repairs, some for longer because of installations. During this period, the Eastern Conservation Committee states, mill buyers will be eager to snap up high grades of pulp substitutes, and the consumers of old corrugateds will be in the market every minute for every ton that can be collected.

The mills have a substantial backlog of unfilled orders, and there are indications that the defense program will require more and more of the mills' products, Colley S. Baker, ECC director, writes. There are 123,695 retail establishments from which waste paper may be collected in the eastern seaboard area, with more listings yet to come. All have wastepaper, mostly mixed and corrugated; some in tremendous quantities. Urged by ECC is that collectors stay on the job of salvaging these most needed grades.

Rags and Bagging Weaker

Marked weakness in demand for old rags and roofing rags has further weakened prices. Posted are mill prices of $2.20 for No. 2 grade of roofings, $2.90 for No. 1 grade. It is notable that the wide differential which has recently existed between prices of No. 1 and No. 2's has narrowed with the lighter demand.

Prices of old bagging grades have weakened still further with the new limits set on automobile production. Dealer prices of domestic gunny are named at $6 to $6.50 per cwt., domestic scrap burlap at $6.50 to $7. Mill buying continues indifferent, and further sags in price are seen as likely.

— E. P. N.

Paperboard Production (Tons)*

	June 16 1951	June 9 1951	June 17 1950
Production	243,313	244,696	209,448
New Orders	195,953	283,123	205,526
Unfilled Orders	649,604	696,726	395,147

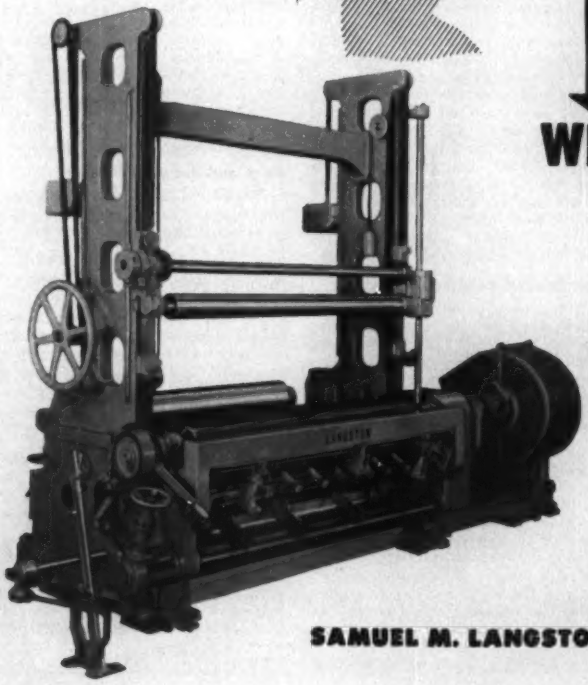
* Source: NPA.

Here's a machine sufficiently heavy to be used either as a Rewinder or as a Winder behind a paper or board Machine. Built in widths from 62" to 92" and to handle diameters up to 50", or on special orders, 60". Ask for Bulletin 204 describing other sizes.

LANGSTON

SLITTERS and

WINDERS



SAMUEL M. LANGSTON COMPANY, CAMDEN, N.J.

News of the Week

Major Rayonier Shakeup

NEW YORK—In the second organizational shakeup since last November, Rayonier, Incorporated, producers of wood cellulose, last week amended its by-laws to enlarge the board of directors membership from 11 to 13, elected four new directors and reconstituted the executive committee.

The four new directors are Ira D. Wallach, a vice-president of Gottesman & Company, Inc., New York; Arthur Ross, vice-president of Central National Corp., New York; Junius A. Richards, partner in Whitney H. N. Goadby and Co., New York; William Tudor Gardiner, former Governor of Maine.

William A. Parker, president of Incorporated Investors, Boston, and a director of Rayonier since 1946, was elected chairman of the board, replacing Charles R. Blyth, president of Blyth & Company, Inc., San Francisco, who resigned his Rayonier chairmanship but continues as a director.

Mr. Parker also was elected chairman of the newly-constituted executive committee of which the other members are D. Samuel Gottesman and Morton H. Fry.

The two directors who resigned are executives of the Hammermill Paper Company of Erie, Pa. Norman W. Wilson, president, and Donald S. Leslie, executive vice-president of Hammermill, one of Rayonier's two largest stockholders.

W. G. Reed, president of Simpson Logging Company of Seattle, Washington, one of the leading founders of Rayonier and its predecessor companies, and the other largest Rayonier stockholder, resigned his interim position of executive vice-president but remains a director.

J. D. Zellerbach, president of Crown-Zellerbach Corp., and one of Rayonier founders, remains a Rayonier director, as also does H. L. Zellerbach, vice-president of the Crown-Zellerbach Corp.

No final action has as yet been taken on the election of a Rayonier president; the matter is still under active consideration by the directors.

Gottesman & Co., Inc., and associates have acquired approximately 60,000 shares of Rayonier, Incorporated, common stock from the Hammermill Paper Co.

GRANT WRITE-OFF CERTIFICATE

The National Gypsum Co. of Buffalo, N. Y., has been granted a fast tax write-off certificate by the DPA to cover a $3,497,625 expansion for the production of paper-board liners at Pryor, Okla.

The DPA would allow the tax advantage on only 50 percent of the project, however. The company originally had asked for a certificate covering a project estimated to cost twice as much.

ANOTHER WASTE LIQUOR USE

Waste liquor is now being used in automobile batteries.

The Wisconsin Pulp and Paper Information Service reports that a residue left from making synthetic vanilla is being used to treat battery plates. It makes the plates more porous, so that the battery does more useful work and lasts longer. Adding as little as 1 percent of the sulphite liquor product to the manufacturing process can triple the capacity of automobile batteries.

PLAN ALBERTA PULP MILL

OTTAWA — Arrangements have been made for the New Pacific Coal and Oils Ltd. to acquire all the shares of North Western Pulp and Power Ltd. which holds pulpwood cutting rights on approximately 2,000 square miles of Crown land in Alberta area of Canada. If financial arrangements are completed, it is proposed to construct a groundwood pulp mill together with the necessary power plant.

EXPANSION IN THE SOUTH

ATLANTA, Ga. — Informed sources predict that proposed expansion of the pulp and paper industry in the South will represent a total investment of more than $200 million.

Expanded markets for timber will open "tremendous new tree farming opportunities for the South's 1,500,000 woodland owners, in the opinion of H. J. Malsberger, general manager of the Southern Pulpwood Conservation Assn.

Nine new pulp and paper mills are either under construction or have been proposed for Alabama, Arkansas, Florida, Georgia, North Carolina and Texas. Practically all of the South's existing 57 mills have announced expansion programs.

Rockefeller Interests Buy Gould

Continental Can Sells All of Subsidiary Capital Stock for $6 Million

NEW YORK — Gould Paper Co., of Lyons Falls, N. Y., a subsidiary of Continental Can Co., was sold to Ralph Luethi of W. Hartford, N. Y., on June 22 for $6 million.

The Gould Co., manufacturers of ground wood pulp and specialties and owners of a large tract of timberlands in northern New York, was acquired by Continental in 1945, primarily to insure a supply of paper for the company's paper container operations. Since that time Gould has been operated as a subsidiary.

With the acquisition by Continental in 1947 of the assets of Hummel-Ross Fibre Corp., Hopewell, Va., which company manufactures kraft linerboard, the company was assured an adequate source of supply of this material for its use in the manufacture of fiber drums.

Last fall a decision was made to concentrate all of the company's paper mill operations at Hopewell, Va., and shortly thereafter an option was granted to the purchasers of the capital stock of Gould.

The funds received from this sale are expected to be used in the expansion of paper making facilities at Hopewell, Va. A new Fourdrinier machine is on order which is expected to be installed at Hopewell early in 1952. This, and other changes, will result in substantially increasing the company's capacity for the production of kraft liner-board at that location.

Ralph W. Luethi, Clinton, has been elected president of Gould. Luethi, an experienced executive in the paper industry and the treasurer of the Sauquoit Paper Co., Gardner, Mass., held an option for the purchase of the

Gould holdings for several months. No changes in the personnel of the plant are contemplated and existing policies of Gould will be continued.

Among the firms comprising the Gould purchasing group are Nelson A. Rockefeller's International Basic Economy Corp., a business organization concerned with financing industrial development in South America, and Cia T. Janer Comercio E Industria, Rio de Janeiro.

Elected recently, the board of directors of Gould now includes Berent Friele, new vice-president of the paper company and vice-president of International Basic Economy; Robert C. Fulton, Jr., New York, a vice-president of IBEC; Lawrence H. Levy, New York, secretary of IBEC; Nils R. Johaneson, New York, president of Cellulose Sales Co. of New York; M. J. Madigan, New York, consulting engineer associated with Madigan-Hyland, Long Island City; Alan Hoover, New York engineer, son of former President Hoover; Henry T. Dorrance, Utica lawyer; and John W. Sale, Hopewell, Va., general manager of Continental Can's paper manufacturing operation.

A group of Brazilian publishers already has entered into a long-term contract to purchase paper produced in the Lyons Falls plant. However, Mr. Luethi emphasized the Brazilian commitment would require only a portion of the plant's production.

For the last two or three months, Gould has been shipping part of its output to South America. Prior to the start of the negotiations leading to the purchase, the company did not engage in a significant export business.

The program of modernization of production equipment and construction instituted by Continental Can will be continued, according to Mr. Luethi, who plans to devote the major part of his time to the mill.

Lester J. Smith, manager of the Gould operation for the last 10 months, will continue in that capacity.

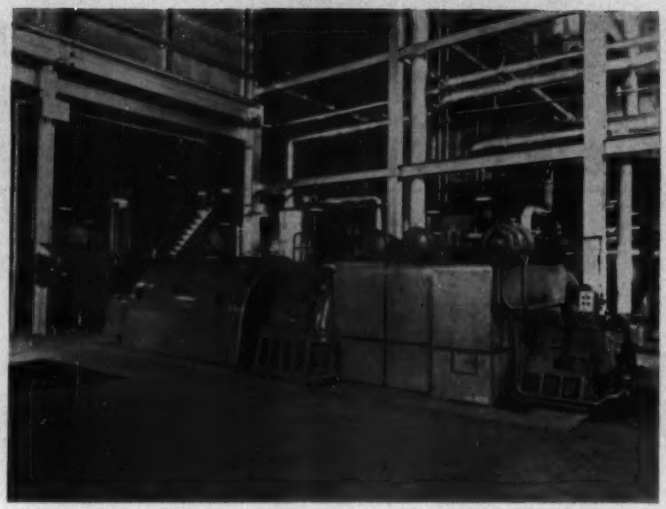
PLAN TEXAS PULP MILL

Construction of a $30 million pulp mill near Evadale, in east Texas, is planned by a new company to be owned by the Houston Oil Co. of Texas, Scott Paper Co. and other interests.

The mill would be located on land surrounded by property of the Southwestern Settlement and Development Corp., which has a substantial tract of timber available for pulp. That company, previously an affiliate of Houston Oil, became a wholly owned subsidiary of the oil company last December.

Actual start of the paper pulp project, it was reported, awaits Governmental approval of an application for rapid amortization of construction costs for tax purposes.

The mill will have a capacity of 300 tons a day. Scott Paper would take some of the output for its paper mills and the remainder would be sold on the market.



7500 k.w. Turbine Generator Unit at Columbia Cellulose Co., Ltd., Watson Island, B. C.

COLUMBIA INSTALLS TURBINES

Two 7500 KW turbine generator units and several plant and boiler auxiliaries powered by turbines supplied by Worthington Pump and Machinery Corp. were recently installed at the pulp mill of Columbia Cellulose Co., Ltd., Watson Island, B. C. Owned and operated by the Celanese Corp. of America, this mill has just started operating.

A non-condensing, controlled, single extraction unit is used to maintain the base requirements when the turbine operates under the following conditions: Inlet steam conditions — 600# G.—750° FTT, Extraction—125,000#/hr at 175# G., Exhaust pressure—75# G.

The second 7500 KW unit selected is of the condensing, controlled, double extraction type.

This unit was designed for the following conditions: Inlet steam conditions—600# G.—750° FTT, 1st extraction—125,000#/hr at 175# G., 2nd extraction—128,000#/hr at 75# G., Exhaust pressure—28 inches of vacuum.

These two units are designed for paralleling the electrical load, with the former unit carrying the base power load and supplying process steam. The condensing unit is used to maintain the two steam pressures required for processing.

This combination of units was selected to maintain the required process steam pressures with power generation as a by-product.

Several plant and boiler auxiliaries are powered by Worthington turbines as follows:

(1) Two 470 HP single stage turbines for driving boiler feed pumps. Steam is used from the main steam line at 600# G. and 750° FTT, and exhaust to 15# G. back pressure.

(2) Two 452 HP single stage turbines driving induced draft fans. These units also operate at 600# G., 750° FTT and exhaust to 15# back pressure.

(3) One 146 HP forced draft fan drive turbine operating under the same steam conditions.

(4) One single stage turbine driving a 50 KW exciter set. Steam conditions are 600# G. at 750° FTT, exhausting to 10# G. to a process steam line.

WILLIAMS ON NEWSPRINT RISE

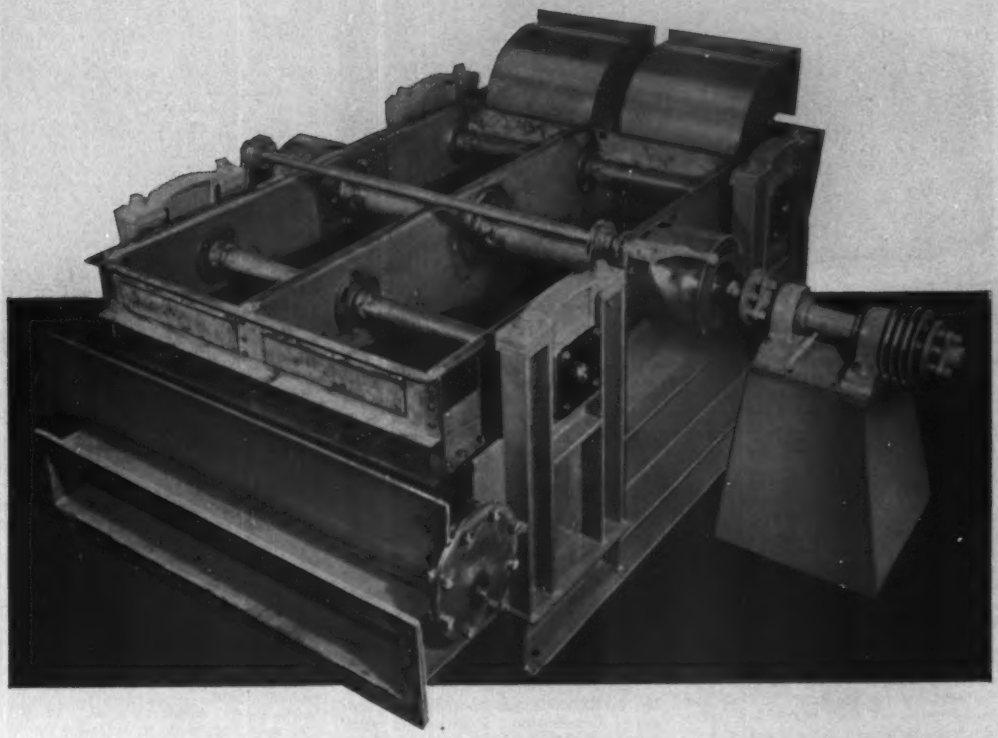
Cranston Williams, General Manager of the American Newspaper Publishers Assn. made the following statement on June 19.

"While the American Newspaper Publishers Assn. is not unmindful of the impact of the price increase of $10 per ton, we do feel that the problem of present and future supply of newsprint must be solved if U. S. newspapers are to grow and serve an increasing American population.

"The ANPA Board of Directors will shortly invite Canadian and U. S. newsprint manufacturers to meet for the purpose of discussing the present and future supply and resources needed for increased production.

"There is no lack of faith by U. S. newspapers in the need for more newsprint.

"The ANPA is already undertaking an enlarged program to assemble the facts that bear directly upon the economics of newsprint production because we recognize it must come on a basis of reasonable profit."



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Ahead Of Your Brown Stock Washers

and you can be certain of tremendous improvement in your washer performance. The stock is uniformly free of knots, shives and chips. Better vacuum is maintained. Maximum recovery of black liquor is effected. Uniform drying is assured.

The Jonsson Screen is equipped with totally enclosed, submerged inlets and operates with screen plates mostly submerged. Foaming is no longer a problem.

Jonsson Screens are rapidly becoming standard equipment ahead of brown stock washers. May we submit recommendations, layouts and estimates?

BIRD MACHINE COMPANY

SOUTH WALPOLE • MASSACHUSETTS

PORTABLE PLASTIC GARAGE

American Agency, 799 Broadway, New York 3, N. Y. is now marketing a vinyl plastic all-weather complete car protector known as the "Plastic Film Garage" that protects an automobile against rain, dirt and dust. The extra heavy gauge vinyl plastic will not mildew, crack or peel—and the elastic bottom holds the cover snugly around the car. It's weight is only five and a half pounds, and one of its outstanding points is the fact that this product saves the time and energy involved in frequent car washing.

ELK FALLS PROGRESSES

The first unit of the newsprint mill for the Elk Falls Co., Duncan Bay, three miles north of Campbell River, B. C., which is being erected in the south-eastern section of the vast Sayward Forest Reserve, is progressing according to schedule. Production of newsprint is expected to start by the beginning of next year.

Excavation work for the plant was completed April 30, by Northern Construction Co. & J. W. Stewart Ltd. Foundations for the main building and construction of the warehouse, office building and repair shop is under way. B. C. Bridge & Dredging Co. have contracted for these buildings.

Clearing for the pipeline, which will bring pure water to the mill for the pulping operation, has been started. Eight bunkhouses, dining room and cafeteria for the 450-man construction crew, have been completed by Bennett & White Construction Co.

Offshore, dredging of approximately 300,000 yards of sand has been completed by B. C. Bridge and Dredging Co., and pile drivers of the Victoria Pile Driving Co. are now sinking pilings for wharfage facilities for deep-sea ships, scows and a rail car ferry service.

When completed, the plant will consist of a wood mill equipped with log haul, cut off saw and hydraulic barker, slasher saws, and steam splitter. The resultant blocks of wood will be lifted to a water flume by means of a conveyor and carried to the groundwood mill. This building will be equipped with six Great Northern Waterous low magazine grinders, driven by three 5500 h.p. Westinghouse grinder motors, and screens, thickeners, and washers. Ross Engineering Co. is installing the ventilating system in the groundwood mill.

The Dominion Engineering Co. of Montreal is constructing a 284-inch newsprint machine designed to operate at 2,000 feet per minute. This machine will be equipped with a Harland Drive driven by a 2,000 h.p. DeLaval geared steam turbine. Continuous roll finishing is being provided, the paper will be stored in the warehouse which has been planned to handle 5,000 tons. From this point the stock will be transferred to the deepsea dock for shipping.

Steam requirements will be supplied by two 85,000 lb. per hour, 650 lb. pressure Combustion Engineering Co. boilers equipped with spreader stokers and auxiliary oil burner. All electric power for the plant will be purchased from the B. C. Power Commission from the nearby John Hart Power development.

The Elk Falls Co., owned jointly by Canadian Western Lumber Co. and Pacific Mills Ltd., will utilize timber from the Duncan Bay Forest Management license in compliance with the sustained yield objectives of the Forest Act of the province. Until regenerating timber reaches cutting size, wood requirements will be met from salvage operations and from small diameter wood from the operations of the Canadian Western Lumber Co.

Faced with an increasing world shortage of newsprint, the directors of the new company are rushing the completion of their mill to aid in easing the situation.

BUILD NEW WAREHOUSE

Paper Merchants Inc. are moving from outgrown quarters at 607 Michigan street to a large modernized building at 201 Nebraska avenue, Toledo, Ohio. The warehouse is served by a Nickle Plate Railroad siding.

FINISH WESTERN MICH. COURSE

Eleven students in the school of Pulp and Paper Technology of Western Michigan College of Education spent the week of June 17th inspecting mills in the section of the U. S. and Canada near the eastern end of Lake Erie. They were led by Dr. Alfred H. Hadelman, head of the Pulp and Paper curriculum.

Their first stop was with the Hammermill Paper Co. at Erie, Pa., to see the sulphite and papermaking operations for bond and ledger specialties. On Tuesday they visited the International Paper Co. mills at North Tonawanda, N. Y., and Niagara Falls for instruction in the manufacture of soda pulp, book, bond, twisting, saturating and ledger papers, and an inspection of the deinking system.

Wednesday found them in Kimberley-Clark's groundwood mill at Niagara Falls, where they also saw machine coating of book papers. In the afternoon they visited Moore Business Forms, Inc. to see the manufacture of forms, sales books, carbon paper, and letterpress and offset printing.

The Upson Co., Lockport was their Thursday morning objective, to see a cylinder machine in action making wall board and specialty coated boards. In the afternoon they watched the manufacture of papermaker's felts at the plant of the Lockport Felt Co.

Friday morning was set aside for a trip through the Ontario Paper Co. at Thorold, Ontario, to see the groundwood and sulphite operations, and the alcohol plant for producing alcohol from waste sulphite liquor. In the afternoon they went to Merriton to observe the manufacture of plain and creped tissue by the Interlake Tissue Mills Co., Ltd. followed by inspection of the manufacture of glassine, greaseproof, drawing and carbonizing papers by the Alliance Paper Mills, Ltd.

A field trip of this nature is an annual event for students in this course. Last year the class visited mills in northern Michigan and in Wisconsin.

The first students to complete the course in the new Pulp and Paper school of Western Michigan College of Education, Kalamazoo, Mich., were graduated this June. All were placed immediately in jobs for which their training had prepared them.

They were located as follows: Donald L. Hayser, Allied Paper Mills, Kalamazoo, Mich.; Wilbur L. Kite, Lee Paper Co., Vicksburg, Mich.; Elton T. Krogel, Watervliet Paper Co., Watervliet, Mich.; Roger L. McVickar, Otsego Falls Paper Mills, Inc., Otsego, Mich.; Wilbur L. Noel, Kalamazoo Paper Co., Kalamazoo, Mich.; Edward E. Stephenson, Sutherland Paper Co., Kalamazoo, Mich.; Wyman F. Uhl, American Coating Mills, Elkhart, Ind.; Raymond C. Wagner, National Gypsum Co., Kalamazoo, Mich.

Dr. Carl A. Schenck, 83, known as the "Grand Old Man of American Forestry," left New York, June 20, by American Airlines for California. Dr. Schenck, who is here from Germany, will attend ceremonies at Prairie Creek State Park in Orick, Calif., where forty acres of colossal redwood trees will be dedicated as the Carl Alwin Schenck Grove in his honor. Prior to his departure, S. L. Frost, executive director of American Forestry Asso., presented Dr. Schenck with a key made of redwood on which was inscribed, "Key to Unlock the Door of the Calvalcade of American Forestry." Left to right in photo: P. P. Willis, American Airlines captain; S. L. Frost, and Dr. Carl A. Schenck.

NEWFOUNDLAND TIMBER DEAL

Swedish interests are seeking concessions in Labrador which would give the Newfoundland government at least a million dollars in royalties every year.

A bill was submitted in the provincial legislature under terms of which ratification is sought of an agreement between the Newfoundland government and Dr. Arthur Seigheim, representing the Labrador Timber Utilization Co. The company will be ceded 1,500 square miles of timber region containing eight million cords of wood and located both sides of Goose Airport. The area is near Lake Melville, Labrador, and has been surveyed by the Air Photographic Survey of Toronto.

The corporation is headed by Dr. Seigheim and is capitalized at three million dollars. A total of 1,500 men will be employed, including 100 Finns and Swedes who are expert foresters. The rest (1,400) will be Newfoundlanders. Company will cut 200,000 cords of wood per year and pay the Newfoundland government $5 per cord (American funds) for stumpage. Two townsites will be established in the areas, complete with schools, churches and municipal amenities which would have to get government approval. Each lot of the workers would be large enough for a house and garden.

Company will pay the highest prevailing wages in Newfoundland for loggers and will also encourage and assist in the formation of unions. The company will also have its own farm in Labrador.

All operations will be completely mechanical and a modern selective cutting and reforestation program will be carried out. A forest farm will be established in which to teach young Newfoundlanders all the latest techniques in all aspects of forestry and agriculture. These young men will later replace the 100 Finns and Swedes joining the company at its inception. The company will also endow a chair at the Newfoundland Memorial University in forestry and silviculture for as long as they continue to operate in Labrador.

The Premier in his explanation of the bill stated that, of the 40 million cords of wood shown in the 10,000 square mile survey in Labrador completed by the Photographic Survey of Toronto the new firm will be given cutting rights on approximately 1,500 square miles, which contain about eight million cords. From this they must cut 200,000 cords per year. No more and no less.

If they fail to make the required cut in any one year for any good cause they may make up the shortage on the next year's cut so that the cut for any two years will total 400,000 cords. If they default in their agreement with respect to the cutting requirements, they have to pay stumpage rights in any event, otherwise the agreement is automatically void. The agreement will last for ten years, renewable for another ten at the end of that period; but can be broken by a four years' notice.

The 1,400 Newfoundlanders employed by the company could come from Labrador or other sections approved by the government. This would enable the government to rehabilitate families to places where they had formerly been living but had been forced to move away in order to make a living.

For the men who wished to build their own homes in the townsites the company would set up a government-approved financing plan as further incentive for them.

Much of the development of the new company would be fixed and would remain even if the sponsors decided to withdraw after the first ten years. This is because of the nature of the development which calls for roads, bridges, canals, buildings and waterway improvements.

Transportation of the product has already been arranged by the company which has made plans for the equivalent of sixty ships to haul the logs to Rotterdam; from thence they will be distributed to various markets in Europe. It is likely most of the raw wood will be used by German paper mills to make newsprint and other grades of paper.

In addition to the 200,000 cords the company must cut every year, it has also agreed to cut another 400,000 cords for the Newfoundland government should it be requested to do so. Naturally, since the wood is on government property, the firm would not pay a stumpage fee on it. The government would pay them for the cutting on a cost plus ten percent basis. The books of the firm would be open to inspection at all times.

The Premier disclosed that Hugo Stinnes, the famous German financier-industrialist, is interested in establishing or sharing in the erection of a newsprint mill in Newfoundland or Labrador which would have a capacity output of 100,000 tons per year.

The bill having been passed, Dr. Seigheim and partners will start work immediately and some progress will be made before the end of the year.

ASK LIQUOR LAGOON BIDS

PORTLAND, Ore.—The Crown Zellerbach Corp. plans to call within two weeks for bids on engineering and other preliminary work on its contemplated 88 million gallon capacity lagoon for the storage of waste liquors at its West Linn mill during low water in the Willamette river, according to Frank Youngman, vice-president in charge of the local district.

The plan is to start construction this summer on the plant, which it is estimated will cost between $165,000 and $200,000.

Mr. Youngman said that research by his company, in which the Oregon State College engineering school has cooperated, indicates that the practicability of huge lagoons for waste sulfite liquors storage looks "very promising." The studies show, it was pointed out by Mr. Youngman and Warren Stayton, in charge of the survey for the engineering school, that a thin asphaltic membrane lining the lagoon will hold the liquors. The problem to be solved now, they agreed, is how to satisfactorily apply the liners to the banks of the lagoon.

GOVERNMENT GOSPEL

Wood Pulp Price Order

The OPS released CPR 49, the wood pulp ceiling price regulation, on June 25, to become effective June 30, 1951.

The regulation establishes specific dollars and cents ceiling prices for 12 standard grades of wood pulp produced in the United States for domestic consumption or for export, and set forth a procedure for determining the ceiling prices for special grades of wood pulp in line with the ceiling prices for the standard grades. Also established were ceiling prices on four grades of wood pulp comprising the bulk of imports from overseas countries and a method for pricing all other grades from such countries. The order did not fix prices for Canadian pulps because of assurances given by the Canadian Department of Defense Production that action had been taken to stabilize the prices of wood pulps sold to consumers in the U. S., and that no general price increase will be authorized without prior consultation with the U. S.

Domestic Prices. The level of ceiling prices established for domestically produced wood pulp is in the lower range of prices in effect during the period December 19, 1950–January 25, 1951, inclusive, which in some instances, amounts to a substantial rollback from the GCPR level. Standard bleached sulfite serves as the base to which ceiling prices of all other grades are related, and is priced at $140, or $22 higher than the price prevailing for this grade before Korea.

Ceiling prices for domestic sales of standard grades of wood pulp produced within the continental limits of the U. S., per short air dry ton, delivered consumer mill, include the basic maximum transportation allowances.

The order sets forth procedures under which prices for special grades of wood pulp may be established within the limits of the regulation, defines the export ceilings, transportation allowances, and makes allowance for the possibility of various price adjustments and petitions for amendment.

Buyer ceilings on standard grades of overseas pulps as set forth by the order are: bleached sulfate $230, bleached sulfite $225, unbleached sulfite and unbleached kraft grades $200, on dock Atlantic seaboard.

Copper Raw Materials Allocations

WASHINGTON, D.C. — Copper-Wire mills, brass mills and foundries were notified this week by NPA to apply for allocations of copper raw materials required for August production.

It was emphasized, however, that allocation of copper raw materials to the copper processing industry should not be confused with allotment of controlled copper materials to manufacturers of finished products under the CMP. The present instructions, it was explained, are designed to permit NPA to start allocating copper raw materials by August 1 pending revision of copper order M-16. After August 1, allocations of these materials will be made pursuant to that order.

A proposed revision of the order is under consideration that would place copper raw materials required by brass and wire mills and foundries as well as miscellaneous users under complete allocation.

Naval Stores Exports

WASHINGTON, D. C.—Export demand for naval stores from this country continued in May at the level of the first quarter, 1951, the Office of International Trade reported this week.

During May the quantity of crude tall oil licensed for export almost doubled the rate for the preceding three months, the agency reported, while the amount of pine oil licensed in May exceeded the average for the previous three months by about 2,000 pounds.

Most licenses for naval stores exports in May were for European destinations, the OIT reported, but some shipments were destined for Brazil, the Philippines, Tunisia, Northern Rhodesia, and other countries.

Johnson Visits Canada

OTTAWA—U. S. Economic Stabilization Agency Administrator Eric Johnston said here Canada's indirect controls deserve praise, and, in general, he thought the Canadian price line was being held satisfactorily, though he did not comment at all when questioned about the recent increase in the price of newsprint, about which a protest had been made recently by U. S. Price Administrator Michael DiSalle.

However, he revealed it was possible a representative of Mr. DiSalle would come here shortly to discuss newsprint but not before July 1, the date at which the new price becomes generally effective.

It is understood that Mr. Johnston had mentioned the newsprint affair in his talks with Defence Production Minister Howe but only "in general terms."

In addition, it is learned that early in July U.S. Defense Mobilizer Charles E. Wilson may come for conferences with Canadian Government officials and among other subjects which might be taken up in these talks may be the $10 increase per ton of newsprint.

Fine Paper Pricing

WASHINGTON, D. C.—Industry members this week approved a tentative draft for an OPS tailored regulation for the fine papers field.

The draft is based on the old OPA regulation MPR 450, which provided dollars and cents prices for standard grades with differentials for packaging, finishing, trimming, volume shipments and other variables.

G. C. P. R. Exemptions

WASHINGTON, D.C.—Certain decorative paper gift dressing and wrappings, such as Christmas and other special occasion wrappings, seals, stickers, labels, etc., packaged for sale during the calendar year were exempted this week from the Manufacturers General Ceiling Price Regulation, CPR 22, by an OPS amendment.

Price control of these products for the remainder of the current calendar year will be under the General Ceiling Price Regulation, effective June 26.

The order does not apply to Christmas and other special occasion greeting cards, however.

Paperboard Set-Aside Ammended

NPA has instructed manufacturers of special paperboard, used in making food containers, to set aside five percent of their monthly production for Government use. NPA at the same time ordered producers of cardboard to reserve 10 percent of their output each month for the same purpose.

The action, taken by amending NPA Order M-36, adds these two categories to List B of the order, which previously had established set-aside percentages for five other types of paper.

The purpose of the set-aside action, NPA explained, is to assure a sufficient supply of paperboard and cardboard for essential Government use and to provide equitable distribution of Government orders to all producers. By letting producers know the Government's requirements in advance, NPA thus will enable producers to plan distribution to their other customers.

NPA pointed out that it may vary the set-aside percentages from month to month as Government needs rise or fall.

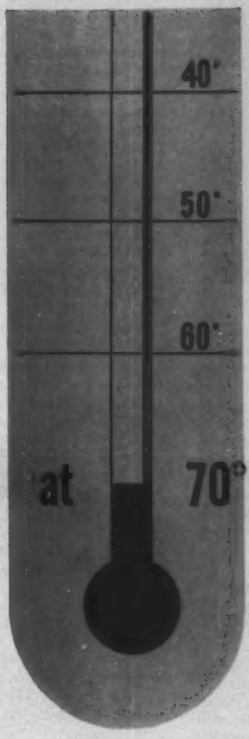
The order also provides that if Government directives received by the 10th of the month do not require all of the set-aside, the producer is permitted to sell the remainder to his regular customers.

Ceilings on Contract Logging

WASHINGTON, D. C. — Dollars-and-cents ceilings were announced by OPS this week for contract logging services rendered in connection with production and transportation of pulpwood cut from mill-owned or controlled stumpage in New England and all of New York State except the nine southern-tier counties.

Ceilings are detailed for three separate zones, with differentials as to species, finish, and other specifications.

The action has the effect of removing these operations from control of CPR 34, the services regulation.



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There's no embrittlement, no cracking of Du Pont "Alathon" polythene resin . . . even at a temperature as low as minus 70°F. That's why "Alathon" is an ideal coating for frozen-food packages, ice cream containers, and other packages which must withstand low temperatures.

"Alathon" is water-resistant

Package paper coated with "Alathon" gives excellent protection against moisture loss or gain . . . a property which is not altered by sealing, creasing or crumpling. In addition, "Alathon" is chemically inert at room temperatures . . . it's odorless, tasteless and non-toxic . . . important factors in the packaging of foods.

"Alathon" is tough and strong

Thin coatings of "Alathon" on kraft, glassine and other papers are exceptionally durable and have good scuff resistance. Moreover, it's economical to use "Alathon" for many coating purposes. Because of its low specific gravity (0.92), one pound of "Alathon" will cover 30,000 square inches of paper with a 1-mil coat. So why not evaluate . . .

"Alathon" for more sales in the future

Because of its outstanding chemical and physical properties, manufacturers and processors of many kinds of industrial and consumer goods will want paper coated with "Alathon" for their packaging material.

Present demand exceeds our production. But by planning now, you'll be able to move fast when "Alathon" is available. Write for more information about Du Pont "Alathon" polythene resin . . . or for technical assistance. We'll be glad to help you.

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Wilmington 98, Delaware

Seek Sulfur In Canada

OTTAWA—Dominion Tar & Chemical Co. has completed negotiations with Fortune Oils Ltd. to give the former a controlling interest in Sunbeam Sulphur Ltd., in Calgary, Alta., with the two firms starting an exploratory building program without delay. Sunbeam Sulphur has a permit from the Alberta Government for sulfur and two deposits of sulfur have already been located in an area about 100 miles north of Edmonton, including possibilities of sizeable mineral belts being located there, though the exact extent of deposits has not been determined finally.

Considering the widespread demand for sulfur in the manufacturing of pulp chemicals and difficulties being encountered to get such supplies from United States which is Canadas only source of supplies, much importance is being attached to this move by Dominion Tar & Chemical which has announced its intention to press forward a drilling program in order to determine whether sulfur exists in commercial quantities and of favorable quality.

Container Cost Information Forms

Members of the Liquid Tight Containers, Milk Bottle Caps and Closures Industry Advisory Committee at their second meeting with OPS officials discussed proposed forms to be used by OPS in obtaining cost information from the industry preparatory to writing a tailored regulation. The committee agreed to make further study of the proposed forms.

The committee previously indicated that dollars and cents ceilings would be practical for liquid tight containers, but suggested industry-wide cost adjustment factors applicable to base period price lists be developed for milk bottle caps and closures.

Committeemen reported that prices of milk bottle caps and closures had increased only 10½ percent in two years. They said under the formulas set forth in the Manufacturers' General Ceiling Price Regulation, CPR 22, their industry would be entitled to price increases which could not be put into effect for competitive reasons. Liquid tight containers are under CPR 22 but milk bottle caps and closures are under the General Ceiling Price Regulation.

Schedule Essential Production

The NPA last week announced the agency's plans and time schedules for programming essential production under the Controlled Materials Plan that goes into operation July 1, covering the third quarter.

Allotments of steel copper and aluminum will be made for the third quarter to all producers of essential defense-supporting and civilian products who have filed under CMP regulations. The CMP 4-B allotments will be mailed out to industry at once, and all should be in the hands of industry in time to obtain materials for September production.

To insure continuation of vital expansion programs on schedule, it was stated, the construction industry will begin receiving allotments under CMP late in the third quarter. To insure supplies of steel, copper and aluminum for consumer durable goods makers, certain quantities of these materials will be specifically reserved in the third quarter. Consumer durable goods producers, though not under CMP in the third quarter, will be called on to file CMP forms in the near future.

These plans cover primarily the above basic metals.

Record-keeping required of manufacturers and others operating under CMP is now set forth in a booklet "Allotment Accounting for Consumers under CMP" which has been issued by NPA, covering users of these metals.

Minimum Wage Hearing

Secretary of Labor Maurice J. Tobin has announced that a public hearing will be held July 11 to consider amending the 75-cent-an-hour minimum wage determination for the Paper and Pulp Industry (including paperboard mills, but not converting plants), applicable under the Walsh-Healey Public Contracts Act. The hearing is scheduled for 10 a.m. July 11, in Room 1214, Department of Labor Building, Washington, D. C.

The present 75-cent minimum has been in effect since January 25, 1950, and under the law the Secretary is authorized to determine prevailing minimum wages for work on Government manufacture and supply contracts over $10,000. Reason for the hearing is that a survey made in May, 1950, indicated that the 75-cent rate might not reflect the currently prevailing minimum wages. Interested persons are asked to submit their views on what the prevailing wages are and whether the present definition of the industry should be amended. Persons intending to testify should notify W. R. McComb, Administrator of the U. S. Labor Department's Wage and Hour and Public Contracts Division, in advance or a written statement and four copies may be filed.

Select Container Base Period

WASHINGTON, D. C. — A recommendation that the third quarter, 1949, be selected as the base period for a tailored regulation for their industry was made to OPS this week by an industry committee representing paperboard shallow containers. A second choice would be the fourth quarter, 1949, they reported.

Methods of developing basic data for a tailored regulation also were discussed with the agency during the week at meetings with an industry advisory group for the groundwood specialty papers industry.

Chemical Cost Calculation

WASHINGTON, D. C.—Chemical manufacturers are given three alternative provisions for calculating materials and labor cost adjustments under the Manufacturers' General Ceiling Price Regulation, in an OPS ruling this week.

The new order permits chemical manufacturers to add to their base period prices, increases in costs of repair and maintenance materials; another provision concerns pricing of sulphur as a manufacturing material; the third applies to joint products and by-products of a single chemical process.

No other group of manufacturers is given any such provision as that pertaining to post base period increases in costs of repair and maintenance materials; the exception was made for chemicals manufacturers, it is explained by OPS, because of the proportionately high expenditures for these items due to the corrosive nature of processes used, high pressures and heat employed.

Other changes were necessitated by the nature of chemicals production, it was stated.

Report Forest Fire Loss

WASHINGTON, D. C. — Fifteen and a half million acres was the forest land fire toll in 1950, the Forest Service reports. This was approximately the same as for 1949.

Set-Up Box Trade Practice Conference

WASHINGTON, D. C. — The Federal Trade Commission will hold a trade practice conference on proposed rules for the set-up paper box industry at Washington, June 28.

Dye Production

WASHINGTON, D. C.—Total U. S. dye production in 1950 was 145,713,000 pounds, the Tariff Commission reports.

Sales totaled 137,295,000 pounds, with a unit value of 73 per pound.

Order Steel Drum Reserve

WASHINGTON, D. C. — Steel drum producers have been directed to reserve 5 percent of their total production per month during June, July, August and September for delivery to specified holders of validated licenses for export of petroleum products, in an NPA move to meet urgent demand for overseas shipment containers of these products.

The order will take out of other use approximately 125,000 drums of 18-gauge or lighter, per month.

Earlier, the Census Bureau reported a 7 percent drop in April production of steel barrels and drums from March figures, and an April backlog approximately unchanged from March, for heavy drums and barrels, but a 3 percent reduction in the backlog for lighter types. Unfilled orders for heavy barrels and drums at the end of April were approximately quadruple the backlog a year earlier.

Bathurst Conservation Measures

E. P. McGinn[1]

Within recent years, many pulp mills in the U. S. and Canada, especially those operated in conjunction with lumber mills, have made great advances in wood conservation by the utilization of lumber mill, planing, and boxboard waste; small and crooked logs; culls and species unsuitable for lumber. Thus, thousands of tons of good pulp are now being made from materials formerly burned or allowed to rot in the woods.

However, there is one company in North America that has pioneered in conservation of a different type, but equally effective. The Bathurst Power & Paper Co. at Bathurst, N. B., has centered its efforts on obtaining higher yields from the wood cooked for pulp.

In 1945 the first commercially successful production of high yield kraft pulp began at Bathurst. The high yields were obtained by reduction of cooking time and liquor strength and passing the hot pulp directly from the blow tank through Sutherland disc refiners to complete the defibering operation.

Obtaining higher yields of satisfactory pulp by this method was not accomplished overnight nor without encountering many difficulties. However, the yield of pulp has been raised from about 50 percent to 62 percent with the chlorine number of the pulp going from about 10 to an average of over 16 at present. Experimental runs with chlorine numbers as high as 19 have been made.

The latest effort to conserve wood at Bathurst consists of the installation of a complete new semi-chemical pulp mill containing two chemi-pulper, Asplund defibrator units. This installation not only produces an extremely high yield but it uses hardwoods to produce a better grade of corrugating board than was formerly made from softwoods. Thus the company's softwood stands may be saved for use in those grades where the longer fibers are required.

[1] Industrial Editor, Paper Trade Journal

J. McK. Limerick
Technical Director

Company History

The Bathurst Lumber Co. was founded in 1907 by Angus McLean and a group of associates. The mill was located in the town of Bathurst at the mouth of the Nepisiguit River where it empties into Bathurst Harbor. The harbor is a well sheltered basin on the southern side of the Bay of Chaleur, from which water transportation is available for about eight months of the year. The town is on the main line of the Canadian National Railroad between Montreal and Halifax, approximately 527 miles east of Montreal and 313 miles west of Halifax. It is also on the main trunk highway between Montreal and Halifax.

The company was very successful in the lumber business and soon made plans for building a pulp mill. Construction was started just before the beginning of World War I in 1914 and was delayed somewhat, but was finally completed and the mill placed in operation before the war's end. Both unbleached kraft and unbleached sulfite pulps were produced at that time.

Soon after the end of the war the lumber business began to decline and the Bathurst management began to look for other outlets for their forest products. At this time the demand for newsprint was steadily increasing so construction was started at Bathurst on a groundwood pulp mill and a paper mill to make newsprint. To obtain electric power for the pulp grinders, a hydro electric plant was built on the Nepisiguit River about 18 miles upstream from the mill. During the twenties the mill operated steadily and successfully but uneventfully until 1928 when the company was reorganized. All bonded indebtedness of the old company was retired and the financial structure simplified to an entirely common stock basis.

Shortly thereafter a second machine was added and the power plant enlarged. Plans for further expansion were indefinitely delayed by the business depression of 1929.

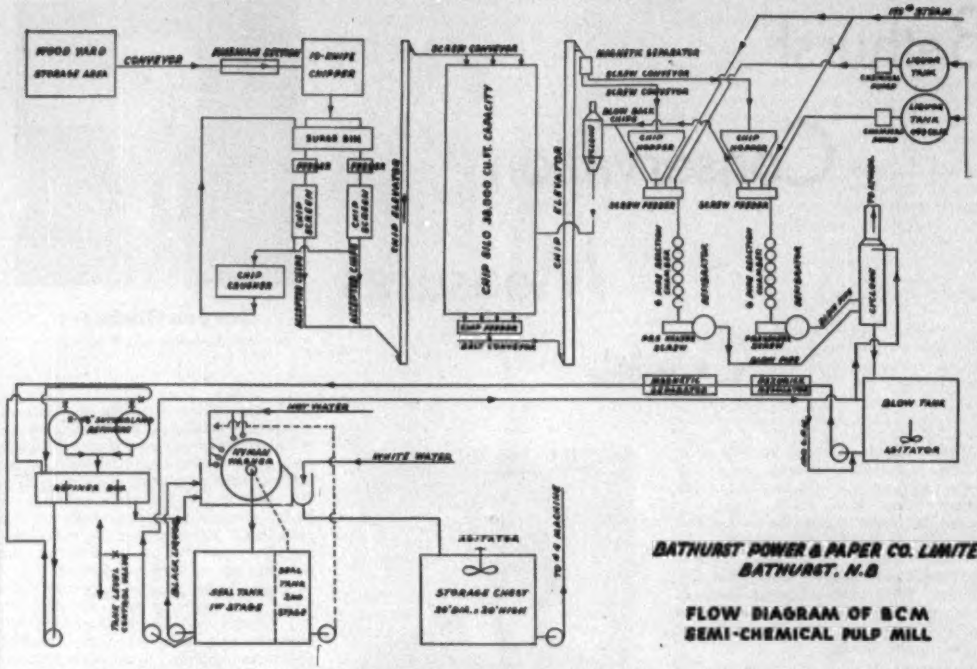
In 1932 one of the newsprint machines was converted to the manufacture of liner and corrugating board. This was the first production of these materials in Canada.

Gordon Chalmers
Administrative Vice-President

Personnel

Present management and key operating personnel includes: R. L. Weldon, president; P. A. Thompson, vice-president; R. H. Christian, secretary-treas-

Gordon Allo
Process Engineer



BATHURST POWER & PAPER CO. LIMITED
BATHURST, N.B

FLOW DIAGRAM OF BCM
SEMI-CHEMICAL PULP MILL

urer; G. A. Schryer, assistant treasurer; F. D. Lamont, assistant treasurer; G. T. Cockerill, administrative vice-president; J. G. Chalmers, administrative vice-president; J. A. Hanna, mill manager; H. S. Smith, sales manager; G. C. Chataway, comptroller; R. K. Fleet, traffic manager; H. O. Schryer, manager purchasing; J. D. B. Howard, personnel manager; W. C. Baggs, assistant mill manager; J. McK. Limerick, technical director; G. Allo, process engineer; R. A. Johnston, superintendent of control; D. Lago, box board mill superintendent; P. C. Austin, kraft mill superintendent; E. Harper, sulfite mill superintendent; W. Hosking, steam plant superintendent; G. E. McLellan, electrical superintendent; D. McLaren, woodlands manager; R. B. Robinson, charge of container research laboratory.

Woodlands

The continuous efforts of the Bathurst company to obtain higher yields of pulp from wood has certainly not been inspired by a shortage of pulpwood or a lack of woodland reserves. Very few companies in the industry, in U.S. or Canada, are as well fixed with woodlands in regard to quality, quantity and availability.

The company owns a total of 2675 square miles in New Brunswick and Quebec. The New Brunswick holdings extend from just outside the town for a distance of about 60 miles to the southwest. The Quebec holdings begin just across the Bay of Chaleur, a distance of about 20 miles. Thus all of the woodlands are easily accessible to the watersheds of the mill.

Although the wood in both the New Brunswick and Quebec holdings is predominantly coniferous, the former also contains considerable amounts of hardwoods such as aspen, birch, beech, and maple. Coniferous species in New Brunswick are mostly spruce, balsam, with some pines. The Quebec holdings contain more balsam and very little hardwood or pine.

Both the New Brunswick and Quebec holdings contain numerous rivers and tributary streams and the terrain is somewhat mountainous, containing fairly steep slopes. It is thus possible to make use of the natural forces of gravity and the flow of streams to carry the pulpwood to the mill. On steep slopes, log chutes are used to carry the wood to the smaller streams which in turn carry it to the main rivers.

Some of the wood is floated down the Nepisiguit River directly to the mill. Wood that is floated down the other rivers goes out into booms at the mouth of each river in the Bay of Chaleur.

The logs collected in the booms at the mouth of each river are formed into rafts and towed to the mill by tugs. On the Gaspe side the logs are formed into rafts of about 3000 cords each and towed by the large tug "Cascapedia," which makes about three round trips each week across Bay Chaleur to the mill. On the New Brunswick side the logs are formed into smaller rafts and towed the short distance to the mill by a specially designed towing boat with a "Harbor Master" engine.

On the level ground, many miles of truck roads have been built. Some of these roads are used to haul the wood to the streams and others connect to the main highway, thus allowing direct truck delivery to the mill.

Although the company holdings are more than adequate to supply the present mill requirements on a sustained yield basis, a portion of the pulpwood requirement is purchased from farmers, contractors and owners of small timberland holdings within a radius of 150 miles. This policy encourages the local landowners to grow and take care of their woodlands and also adds to the general welfare of the community by putting a considerable amount of extra money into circulation.

The woodlands at Bathurst are under the control of the woodlands manager, D. MacLaren. This department operates the logging camps, transports the logs to mill and takes care of fire protection. Several graduate foresters are employed on the staff of this department.

One of their most important functions is to protect the forests from fire and insects. The Bathurst Forestry Department cooperates with the Provincial Governments of both New Brunswick and Quebec to provide a maximum of protection.

BATHURST POWER & PAPER COMPANY

installs

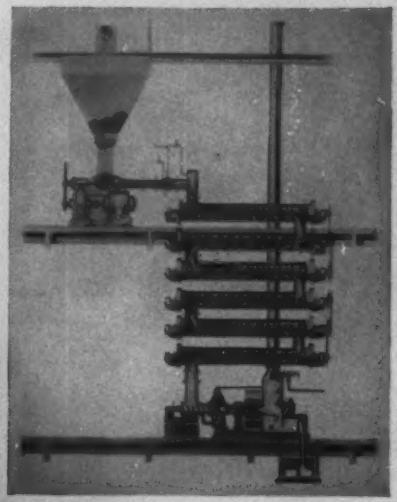
2 CHEMI-PULPERS®

to produce semi-chemical pulp from unbarked, mixed hardwoods for making corrugating board

These Chemi-pulper installations comprise two 6-tube units. The operation uses unbarked, mixed hardwoods exclusively together with kraft cooking liquor for producing semi-chemical pulp. Provision was made for two additional pipes in each Chemi-pulper for future requirements.

The Chemi-pulpers operate continuously, producing a uniform pulp for making their high-grade corrugating board.

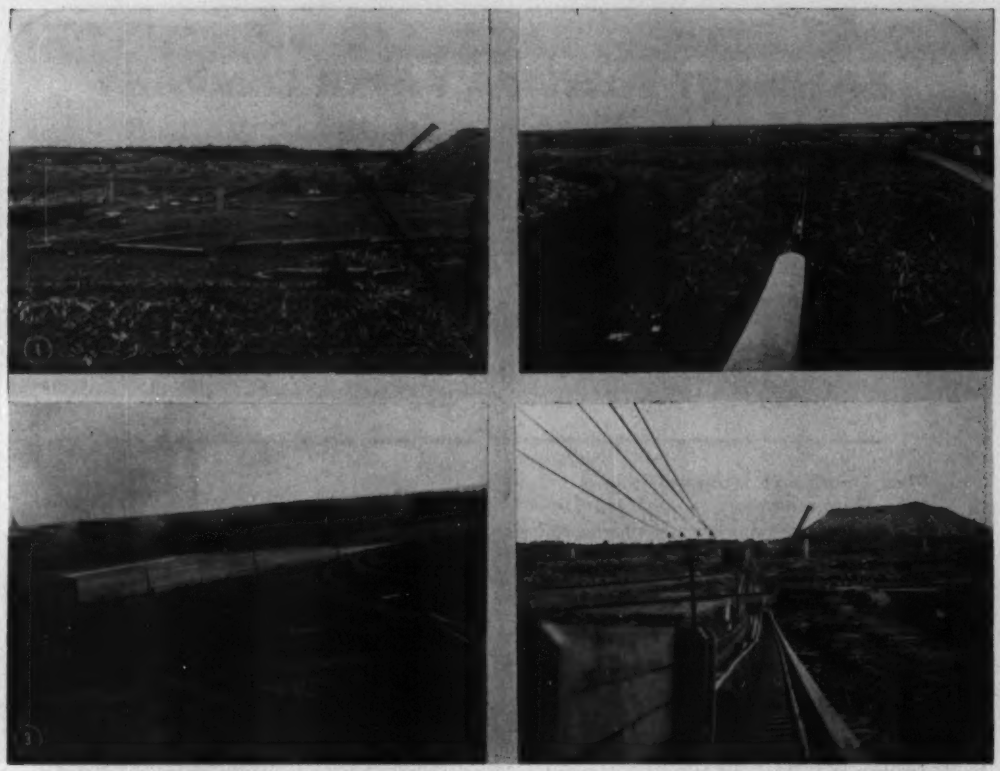
These Chemi-pulpers will effect substantial savings in steam, power and labor costs. Compact design and construction permitted a saving in building space.



Multiple-unit
B-K REACTION CHAMBER
with Asplund Defibrator

Flow drawing shows operation of one of the two Chemi-pulpers installed in Bathurst Power & Paper Company mill for producing semi-chemical pulp for corrugating board.

PAPER and INDUSTRIAL APPLIANCES INC.
122 EAST 42nd STREET ● NEW YORK 17, N. Y.



Upper Left—Part of Woodyard Showing Sections of Portable Conveyors, Crawler Crane with "Orange Peel" Grab and Pulp Stacker in Background. Upper Right—Hardwood Storage Area and Conveyor. Lower Left—Rough Wood Storage in Woodyard. Wood Preparation Building at Left, River in Center with Log Boom at Right. Lower Right—Reversible Conveyor Leading from Wood Yard to Sorting room.

During the fire season a total of nine fire towers are operated for fire protection. Fire suppression crews, organized before the fire seasons, are ready for call at a moment's notice.

Both company and Provincial Government foresters are constantly on the lookout for indications of disease or insect attack. Corrective measures are begun immediately after discovery of such attack.

Wood Handling at the Mill

A new floating loader has recently been installed to remove the logs from the water and convey them to the jack ladder which carries them to the woodroom. The jack ladder delivers the wood on to a large circular rotating sorting table from where it is directed by the sorters to the proper chute that takes it down to barkers, chippers, etc. Wood coming up the conveyor from the log pond, normally goes to the barking drums.

A major portion of the yearly supply of wood is brought to the mill in the Spring drives. This wood is all debarked in three Ingersoll Rand 12' x 45'barking drums, and immediately sent to the woodyard for storage, except that which is used for current requirements.

Barked wood is stacked in the yard in four piles by means of a stacker mounted on flanged wheels allowing it to travel on a circular track covering a large portion of the storage area. This machine is 85 feet high and was built of structural steel by the Waterous Company. About 100,000 cords are stored in the yard. Wood is reclaimed by crawler cranes equipped with orange peel grapples which deliver the wood into portable conveyors that feed into the main return conveyor. The latter is reversible and used both for carrying wood out to storage and also for reclaiming it. The portable conveyors are in twelve foot lengths and may be placed wherever needed in the yard.

Wood to be used in the mill may be brought up from woodyard storage by a chain conveyor or carried up from the barking drum discharge by another conveyor. Whatever the source, all wood except hardwood for the semi-chemical mill, must be brought to the sorting table from where it is directed to the kraft mill chipper, or one of the two sulfite mill chippers or to the conveyor leading to the groundwood mill. The wood is separated by species, with all pine going to the kraft mill and only spruce and balsam going to the groundwood and sulfite mills. Of course, spruce and balsam also constitute a high percentage of the kraft mill wood since pine amounts to only about 5 percent of the total cut. All of the wood is cut into four foot lengths except jack pine which is cut three inches longer to make certain it is readily identified and thus does not accidentally get into the groundwood or sulfite mills.

Wood for the kraft mill goes from the sorting table into a chute that carries it to the Carthage 10 knife 88" chipper. Chips are carried to the vibrating chip screens from which the accepted chips are carried to the chip storage bins above the digesters. These bins hold approximately 25,000 cubic feet of chips or about 6-7 hours' supply.

Wood for the sulfite mill passes to the two Carthage 88", four-knife, chippers, from which the chips travel to a vibrating chip screen. Accepted chips are carried up to the sulfite storage bins which have a capacity of 20,000 cubic feet of chips or about 20 hours' supply.

Separate Carthage chip crushers are provided for the kraft and sulfite chip screen rejects.

Groundwood Pulping

Wood for the grinders is selected from the spruce balsam mixture and transferred to a chain conveyor which carries the pieces sideways up to the feed of the Waterous magazine grinders. There are six of these grinders connected in pairs to three 2800 h.p. 220 r.p.m. synchronous motors. Each grinder has a capacity of a little over 20 tons per 24 hours. The stones are 62 inches diameter with 54-inch face. Only artificial stones are now used.

Pulp from the grinders flows by gravity to a trough which carries it to a 6 ft. x 24 ft. Waterous bull screen from which the accepted stock flows to a concrete storage tank. From here it is pumped to a pair of Sherbrooke knotters. Accepted stock from the knotters flows by gravity to five Waterous centrifugal screens. Accepted stock is thickened on 12 Waterous deckers, from which the thickened stock is carried by screw conveyors to a concrete storage tank. Rejects from the fine screens flows to a battery of five tailing screens from which the accepted stock is returned to the system ahead of the knotters. Tailing screen rejects are pumped to the board mill to be refined for use in screenings board.

Sulfite Pulping

The sulfite mill contains three digesters, each 50½ feet high and 17 feet diameter and having a capacity of 14 tons of pulp per cook. Chips are cooked about nine hours. Each digester has its own wooden stave blowpit, equipped with perforated stainless steel bottom for washing. Washed stock from the blowpits passes to a large concrete storage chest from which it is pumped to three Sherbrooke knotters. Rejects from these knotters are sent to the board mill for use in screenings board. Accepted stock from the knotters is diluted with white water before going through a riffler 46½ feet wide by 72 feet long from where it goes to the flat screens. Stock is thickened on an Oliver vacuum filter and four deckers before going to a concrete storage chest.

The sulfite mill is equipped with a chemipulp accumulator and hot acid system.

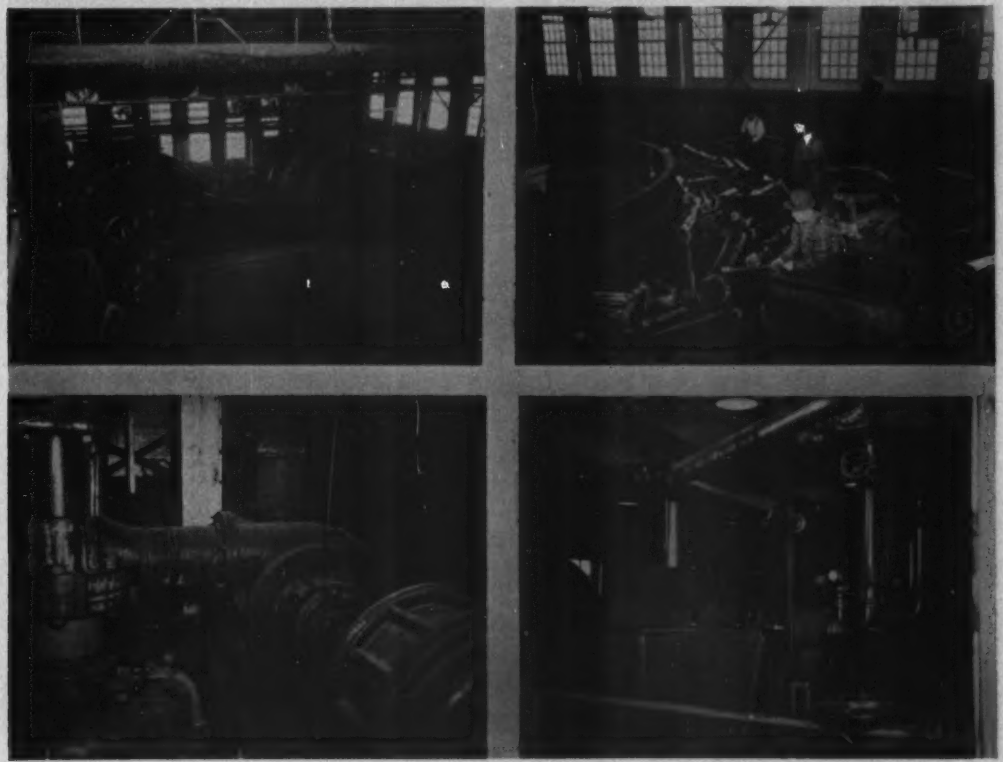
Kraft Pulping

There are four kraft digesters, each 50½ feet high by 9½ feet diameter. The digesters were originally designed to yield 7¼ tons of pulp per cook. However, the increase in yield has raised the digester capacity to over 9¼ tons of pulp per cook. The cooking time has been reduced to about 1¾ hours and the total production of the four digesters is over 270 tons per day.

Pulp is blown into a blow tank which holds about four cooks. Consistency is adjusted to 3½ percent with hot black liquor by means of a torque type regulator in the cone bottom of the blow tank. The stock is pumped from the blow tank through a magnetic separator and thence to a jordan which acts as a knot breaker. A Sutherland rotary knot breaker, the first of its kind, is now being installed for trial to replace the jordan.

From the latter, the hot stock passes up to the three 48-inch Sutherland refiners arranged in parallel. The supply line also continues on past the refiner inlets and goes back to the blow tank to maintain continuous circulation and good mixing.

After passing through the refiners, the stock bows by gravity to the refined stock chest from where it is continually pumped to two Swenson-Nyman 9′ x 12′ and one 9′ x 16′, two



Upper Left—Ingersoll Rand 12'x48' Barking Drums. Upper Right—Circular Log Sorting Table. Lower Left—Sutherland Knot Breaker in Hot Stock Refining Process. Lower Right—Sutherland Hot Stock Refiners in Kraft Mill.

One of the Six Waterous Magazine Grinders.

stage vacuum washers. The 9' x 16' washer has only recently been placed in operation. The increased washing capacity provides for better washing as well as possible increases in production.

The washers are located on the floor near the top of the digester level, with the refiners being one level below.

Stock from the washers flows by gravity to a dump chest from which it is continuously pumped to another chest, called the "rough chest," where its consistency is reduced for screening. From here the stock is pumped to the knotter head box. There are four Sherbrooke centrifugal knotters arranged in parallel, followed by six Apmew rotary fine screens also arranged in parallel. Rejects from these screens are returned to the blow tank.

Screened stock is thickened on one Oliver and one Sherbrooke vacuum deckers from which it is discharged into a large concrete storage chest.

Recovery Plant

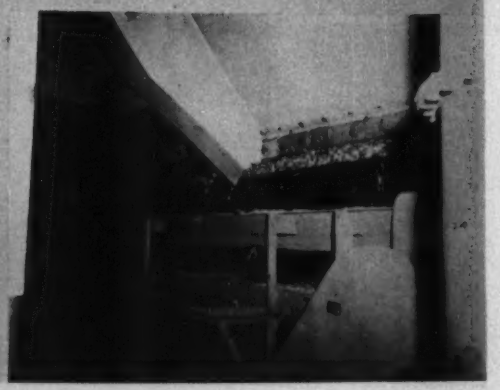
The recovery system consists of a Swenson Sextuple effect evaporator, a D. J. Murray Cascade evaporator, a B. & W. recovery furnace, and batch causticizing system.

Plans have been made to add a continuous causticizing system. At present, only part of the lime sludge from the causticizing system is reburned in a vertical kiln for re-use in the recovery system. Part of the sludge is used as calcium carbonate make-up in preparing cooking liquor for the sulfite mill. The balance is sent to sludge beds for use as fill and agricultural lime.

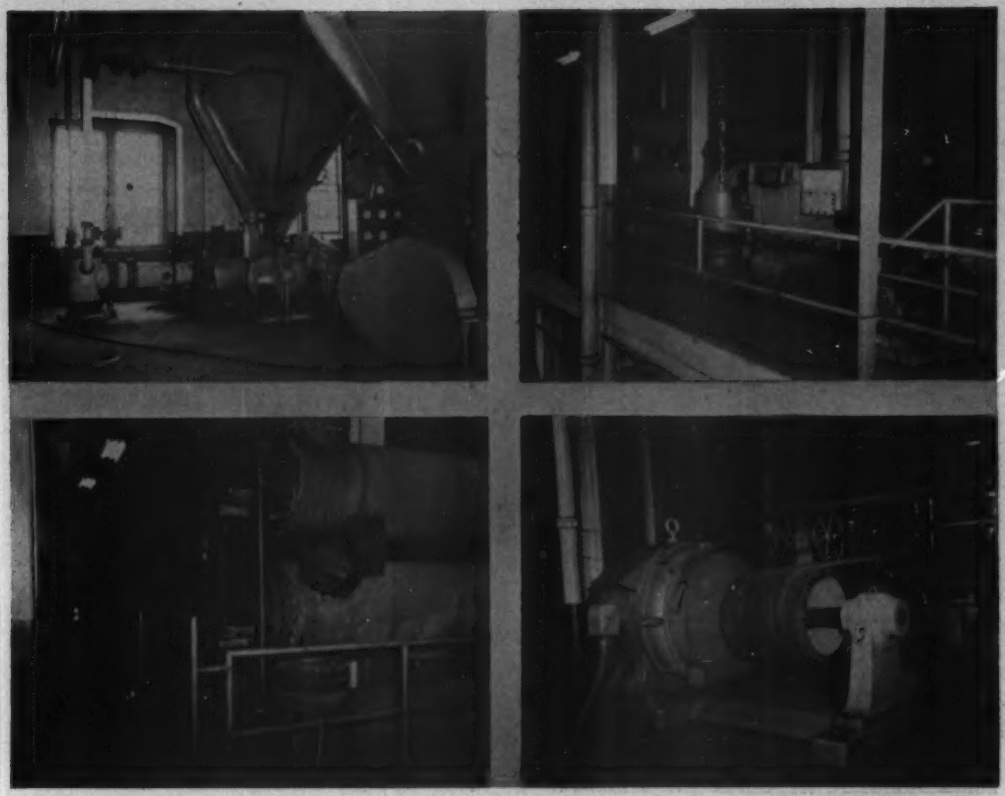
Dillon Chip Screen in BCM Plant.

Semi-Chemical Mill

For several years, corrugating board has been made at Bathurst from mixtures of kraft and groundwood pulps together with refined screenings of all kinds. However, the existence of fairly



Upper Left—Conveyor Carrying Hardwood Bolts up to the Chipper. Upper Right—Carthage Chipper. Lower Left—Jeffrey Screw Conveyor Distributing Chips into Top of Chip Bin. Lower Right—Star Feeder Transferring Chips from Storage Bin to Conveyor. All in BCM Plant.



Upper Left—Asplund Feeders and Chip Hoppers. Upper Right—Top of Chemipulper Units, DeZurik Consistency Regulator, Dings Magnetic Separator, Chemipulper Drives. Lower Left—Upper Tubes and Drives of Chemipulper Units. Lower Right—Asplund Defibrator Drive. All in BCM Plant.

large quantities of hardwoods in the New Brunswick area near the mill, inspired the efforts to find a use for them.

Experimental work in the laboratory and pilot plant indicated that superior corrugating board could be made from these hardwoods by a semi-chemical process. Such a system offered three distinct advantages as follows: (1) the product promised to be superior to the present product; (2) the use of hardwoods would provide better balance to the forestry program and avoid cutting softwoods and with the hardwoods left standing. At the same time the softwoods formerly used for corrugating could be saved for better uses; (3) the cost of production is lower. In view of these advantages the natural result was the installation of the new BCM plant. BCM has a double meaning — Bathurst Corrugating Medium and Bathurst Conservation Measure.

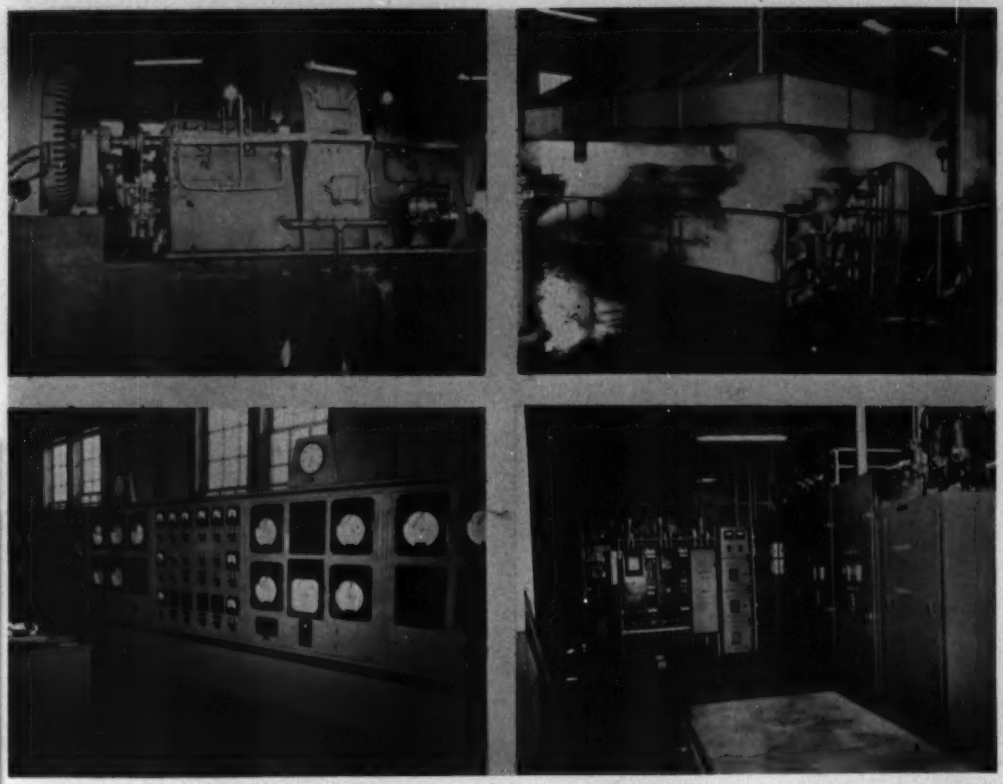
The process uses all species of hardwoods, which in this area are mostly poplar, beech, birch and maple.

Since the hardwoods are too dense to be floated to the mill in the streams, they are brought in by truck in either four or eight foot lengths. They are stored in the woodyard, adjacent to a new cable conveyor which carries the wood up to the chipper on the second floor of the BCM building.

Wood may be fed into the conveyor either by hand or with a crawler crane having an orange peel grapple which lifts the wood into a mechanical feeder that distributes the logs into the conveyor. This feeder is mounted on a track and is self propelled so that it can be moved to any point along the entire length of the conveyor. The conveyor itself consists of a concrete trough with a steel plate lining, in which runs a cable with lugs to carry the logs. The trough is kept partially filled with water from showers which wash the wood. This water helps to wash the logs and to also reduce friction of both logs and cable. The wood receives additional washing as it enters the building and starts up the incline toward the chipper. Here a series of high pressure showers in an enclosed portion of the conveyor wash all sand and dirt from the logs. Washing is especially important since the logs are chipped with the bark on. The logs continue up the conveyor and into the Carthage 10-knife 88" chipper. Chips flow into a surge bin which feds two Dillon triple deck vibrating chip screens. Oversize rejects are put through a Carthage rechipper and then returned to the surge bin. Accepted chips are carried in a Jeffrey bucket elevator to the top floor of the building where a Jeffrey spiral conveyor distributes them evenly throughout the length of the chip bin. This bin has a capacity of 38,000 cu. ft. of chips, enough to supply the mill for 18 hours. Thus it is necessary to operate the chipper and wood handling equipment only on the day shift.

Chips are removed from the storage bin by means of a star feeder that transfers them to a belt conveyor which in turn feeds them to a second bucket elevator. The chips are again carried up to the top of the building and then allowed to flow down, by gravity, through a Dings magnetic separator, which removes tramp iron. Screw conveyors then carry the chips to the two hoppers, each of which feeds into a continuous semi-chemical pulping unit.

There are two identical units, each



Upper Left—One of the Pair of 48" Sutherland Refiners Handling Semi-Chemical Pulp. Upper Right—Swenson-Nyman, 9'x16', Two-Stage Vacuum Washer. Lower Left—Control and Instrumentation Panel on Operating Floor. Lower Right—Switch Gear Enclosures. All in BCM Plant.

consisting of a screw feeder, continuous reaction chamber and Asplund defibrator.

The chips enter each unit through the screw feeder that forms a plug of chips, sealing the reaction chamber and allowing high pressures to be maintained in the unit. Steam at 150 p.s.i. and a modified kraft cooking liquor are mixed with the chips in the screw conveyor.

The cooking liquor is metered into the chips in each unit by means of a Milton Roy Duplex Pump having a maximum combined capacity for both pumping cylinders of 1940 g.p.m. Both units are operated with flooded suction.

Each cylinder is designed to handle a maximum of 920 USGPH of cooking at 70°F. against a discharge pressure of more than 150 p.s.i. The capacity of this unit is variable from 0 to 100 percent of maximum by screw adjustment of the plunger stroke length. Materials of construction used in this pump are 18-8 stainless steel liquid ends, ball seats, packing gland and plunger with 4-40 stainless steel ball checks.

This duplex unit is driven by a 7½ h.p. 3 phase, 60 cycle 550 volt, totally enclosed type Master Electric gear motor.

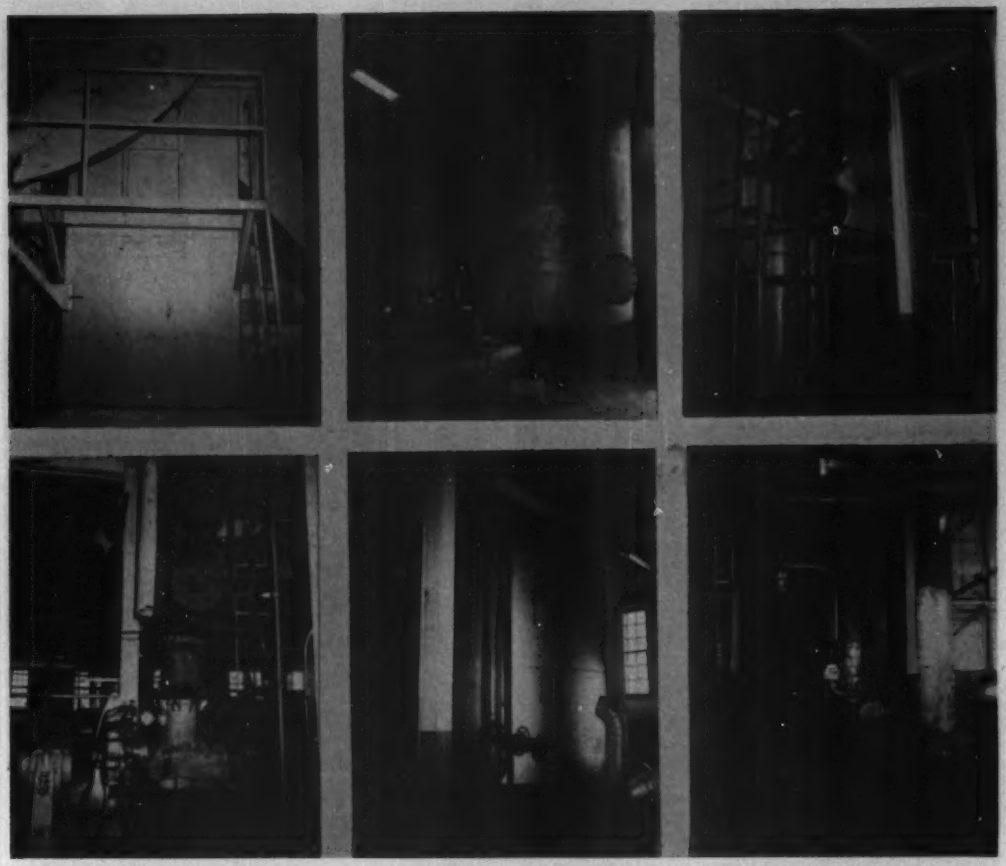
Both chemi-pulper units are protected with safety devices to prevent blow-out of steam or liquor in the operating area. In case of stoppage of chip flow from the hopper, or plugging of the screw feed, pressure is released into the discharge cyclone.

The hot mixture of chips and chemical flows from the screw feeder into a downspout and thence into the first of the six pipes constituting the chemi-pulper reaction chamber built by Paper and Industrial Appliances. Each of these tubes is two feet in diameter and 19 feet long and is made of stainless clad steel with the stainless on the inside. Each pipe is fitted with a screw conveyor that carries the chips forward at a definite controlled rate. As the chips reach the end of a tube they fall through a short connecting pipe to the tube directly below where another screw conveyor immediately begins to take them in the opposite direction. Thus the direction of flow is opposite in each alternate pipe.

The conveyors within the tubes are all driven by chains and sprockets from a variable speed Reliance drive. The rate of speed of the drive controls the rate of flow of the chips through the unit and thus controls the total cooking time and the degree of treatment.

Space was provided in each unit for the installation of two additional pipes at the top of the reaction chamber. This increase in the number of pipes from 6 to 8 would increase the rate of protection or the degree of treatment by 33⅓ percent.

On leaving the reaction chamber and while still under pressure, the chips pass through the Asplund defibrator which supplies the mechanical treatment necessary to make pulp out of the softened chips. This defibrator is a single rotation disc refiner, equipped with coarse tackle, to break up and defiber the softened chips. On leaving the defibrator, the stock, which is still under pressure, flows to the cyclone where the steam is released and the pulp is diluted with black liquor to a consistency of 6 percent, after which it falls into a tile-lined blow-chest below the cyclone. This chest is equipped



Upper Left—Top of Jeffrey Chip Elevator Carrying Chips to Storage Bin. Upper Center—Cooking Liquor Storage Tanks. Milton Roy Proportioning Pumps between Tanks. Upper Right—Bottom Four Tubes of One of Chemipulper Units. Lower Left—Asplund Defibrator Unit with V-Belt Drive at Left. Chemipulper Tubes above. Lower Center—Blow Tank. Lower Right—Tile Pulp Storage Chest. All in BCM Plant.

with propellor agitators. One cyclone and blow chest serve both of the pulping units. Stock from the blow chest is pumped through a DeZurick consistency regulator that adjusts it to 6 percent consistency, then to a Dings magnetic separator, from where it goes to the two Sutherland refiners. These refiners are equipped with 48" stainless steel discs and are driven at 450 r.p.m. by 450 h.p. synchronous motors. The stock is still hot at this point as it passes through the refiners in parallel. The operation of these refiners is similar to that of the hot stock refiners in the kraft mill except that stock consistency is 6 percent here and 3½ percent in the kraft mill. The stock flows from the refiners into the refiner flow box from where it passes directly to the Swenson-Nyman vacuum washer. This two-stage washer has a cylinder 9 ft. diameter by 16 ft. long. Washed stock drops into a Semtile storage chest built by Stebbins Engineering Co. This chest has a capacity of 6,000 cu. ft. From here the stock is pumped directly to number 4 machine in the paper mill.

One of the most interesting features of this installation is the instrument and control panel on the operating floor. From this location all operations in the plant, including chip feed, chemical and steam flow, temperature control and refiner and washer operation. The refiner and washer, as well as the chip hoppers and screw feed to the pulping units are all located on the operating floor with the control panel.

The instrument panel with recording and control instruments was built by the Foxboro Company and installed by Peacock Brothers, Ltd. of Montreal.

With this efficient layout of the plant, all operations are controlled by a crew of three men per shift, plus the chipper operator on the day shift.

The BCM plant was designed and built by the engineering and construction staffs of the Bathurst Company. The plant was designed to produce 200 tons of semi-chemical pulp per day. However, number 4 paper machine is unable to use more than about 150 tons per day at present and consequently it has been impossible to run the plant up to capacity.

Paper Mill

Number 4 paper machine, which is used for making the .009" corrugating board, is a Walmsley, 160-inch Fourdrinier that trims 146 inches. The stock for this machine is treated in one jordan followed by two Sutherland 48" refiners in parallel. These refiners are driven by 350 h.p. motors at 450 r.p.m. The production of this machine is now about 150 tons per day.

The mate to this machine, number 3, is also a Walmsley 160-inch Fourdrinier trimming 148 inches. The productive capacity of this machine has recently been increased by the addition of 15 Lukens 5 foot, double shell welded dryers, built to take steam at 175 p.s.i. The new dryers were installed

Upper Left—DeZurik Consistency Regulator on No. 4 Paper Machine. Upper Right—Two 48" Sutherland Refiners on Number 4 Paper Machine. Lower Left—Wet End of Number 4 Paper Machine. Lower Right—Dry End of Number 4 Paper Machine.

at the dry end of the machine and the 15 dryers that were removed from the dry end will be installed at the wet end to still further increase the production. The addition of the new dryers has made possible the increase in production of this machine from 175 to 215 tons per day, with an estimated additional increase to 255 tons per day when the job is complete.

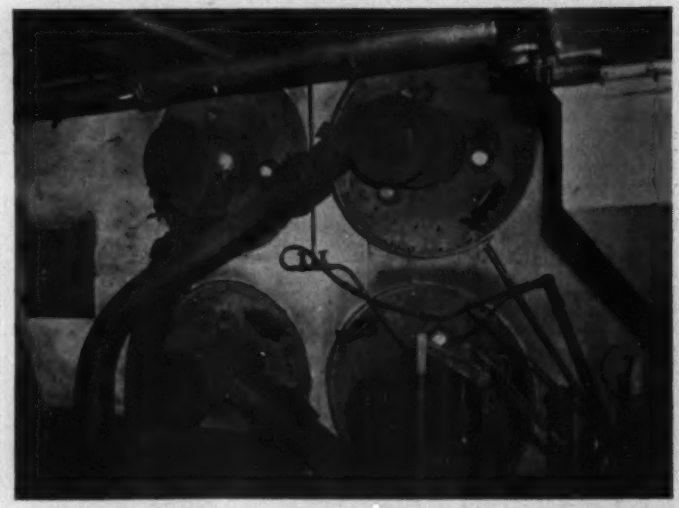
The stock preparation on this machine consists of one jordan and four Sutherland 48" refiners.

The boxboard mill consists of one six cylinder Black-Clawson board machine, six beaters and three jordans. The production of this machine is about 80 tons of folding and set up boxboard per 24 hours.

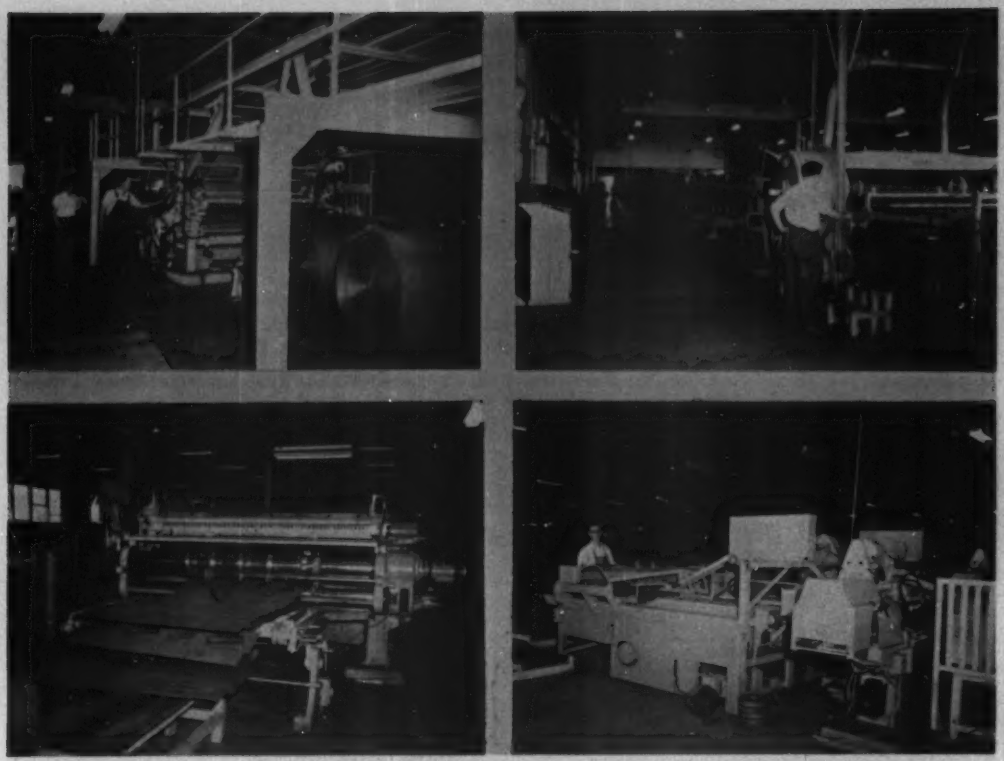
The other machine in the paper mill is a two cylinder pulp dryer used for drying unbleached sulfite pulp for sale. Capacity is about 80 tons per day.

Power Plants

Water Power: Bathurst is fortunate in having a considerable amount of water power on its properties along the Nepisiguit River. Although it is only partially developed, this river is considered capable of producing about 40,000



Front of C. E. Pulverized Coal, High Pressure Boiler.

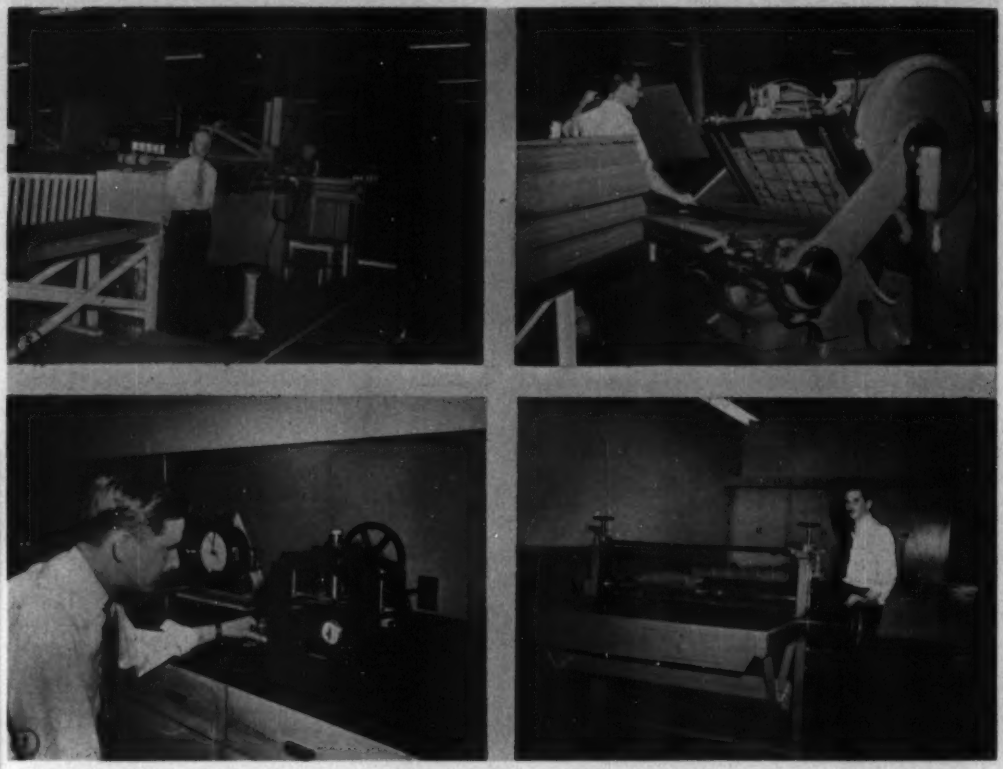


Upper Left—Langston Corrugator. Upper Right—Drier and Cutter on Langston Corrugator. Hooper Cut-Off in Right Foreground. Lower Left—Langston Printer-Slotter. Lower Right—Bliss Automatic Stitcher. All in St. Laurent Container Plant.

Left: R. B. Robinson, in charge of Shipping Containers Laboratory, shown with G. E. Puncture tester left and Torsion Tear tester right. Right: Container Crush tester.

KVA. The installation at Great Falls, 18 miles from Bathurst, has a present capacity of 10,800 KVA from three 3600 KVA G.E. vertical generators driven by two Boving, Francis-type, spiral-casing turbines and one Allis-Chalmers, Francis-type, spiral-casing turbine. Power is generated at 4,400 volts, three phase, 60 cycles. The voltage is stepped up to 33,000 volts in three transformers before being sent to Bathurst on a two circuit transmission line supported by lattice steel towers. Transformers at the mill substation reduce the voltage to 2200 volts, and it is then tied into the 2200 volt system from the mill generators.

Steam Plant: The major portion of the mill power supply is obtained from two large boilers, both producing steam at 675 p.s.i. and 722°F. Both boilers are designed to burn powdered coal and each is equipped with its own pulverizer. One of these units was built by Combustion Engineering Co. and is rated at 110,000 lbs. of steam one hour.



Upper Left—W. N. Thompson, Asst. Superintendent of St. Laurent Plant in front of S & S Automatic Taper. Upper Right—Thompson Die Cutting Press. Lower Left—Bob Thompson Operating Hinde & Dauch Flat Crush Tester at "Shipping Containers" Testing Laboratory. Lower Right—Sample Cutter in "Shipping Containers" Testing Laboratory.

The other was built by Babcock and Wilcox Company and is rated at 175,000 lbs. of steam one hour.

There are four other B & W coal burning boilers, each producing 25,000 to 30,000 lbs. of steam per hour at 175 p.s.i.

In addition to the coal burning power boilers, the Babcock and Wilcox Tomlinson-type recovery furnace produces 35,000 lbs. of steam per hour at 175 p.s.i.

All of the output from the two high pressure boilers is ordinarily used to drive two Brown-Boveri 7500 KVA turbo-generators. However, there is a connection from the high pressure line to a de-superheater and pressure reducing station, from which steam may be delivered into the 175 p.s.i. line.

Each of the above turbines takes about 142,000 lbs. of steam per hour at 600 p.s.i. and 722°F. Extractions are made at 175 p.s.i. and 40 p.s.i. with one unit exhausting to a condenser. Each generator produces 7500 KVA, three phase, 60 cycles, 2400 volts, rotating at 3600 r.p.m.

There are also two smaller turbo-generators, each producing up to 2000

Container Crush Tester and Drum Tester at "Shipping Containers" Testing Laboratory.

KVA, three phase, 60 cycle, 2400 volts, rotating at 3600 r.p.m. The generators are Westinghouse and the turbines are Hick-Hargreaves. They use steam at 175 p.s.i. extracted from the 7500 KVA units and exhaust into Westinghouse jet condensers.

The electric power output from all of the above generators is fed into the 2200 volt mill system together with power from the water power generators at Great Falls. Electric power and lighting for the town of Bathurst, as well as the mill, is also supplied from this system.

Within the mill, the voltage is reduced in various substations to 550 volts for motors of 100 h.p. or less. Large motors use 2200 volts.

Laboratories

Bathurst has unusually well equipped and efficiently operated control and research laboratories. The control laboratory is responsible for testing all raw materials received at the mill and for checking the strength solutions such as alum, size, etc. For the pulp mills they make hardness and strength tests on pulps and analyze the cooking liquors. Freeness tests are made on groundwood pulp.

In the paper mill they make freeness tests on the stock after refining and check consistency regulation. Routine pH tests are made on the paper machine stock. Inspectors test each reel of paper and board for caliper, basis weight, moisture, mullen, tear, tensile, fold, etc. Color, cleanliness, finish and formation are also checked.

Boards are also tested for stiffness and the corrugating medium is given a special test for single flute rigidity.

In addition to the main control and research laboratories, control stations are located in the paper mill and each pulp mill.

The research and development department has a well equipped pilot plant which has mostly been used to develop pulping processes, such as the high yield kraft and the semi-chemical process. However, it is equipped to handle most of the processes used in the Pulp and Paper Industry.

It was in this laboratory where the advantages of the present BCM plant were brought out and the commercial plant was based on the work accomplished here.

Container Board

Bathurst now has two corrugated box plants in Montreal, Que., under the name of the wholly owned subsidiary, Shipping Containers, Ltd. The older of these two plants has been located at 155 Beaubien St. for several years. The other plant, located at 205 Hodge St., Ville St. Laurent, Montreal, Que., has only recently been placed in operation. Another subsidiary, Kraft Containers, Ltd., has a plant in Hamilton, Ont.

At the Hodge St. plant there is also a new and very completely equipped container testing laboratory and also a division for the development of new and improved containers.

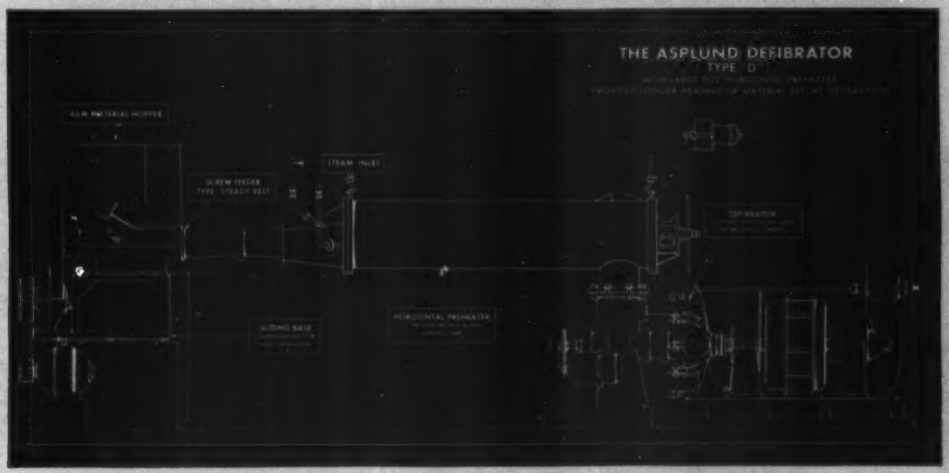
This laboratory is 28 ft. wide by 66 ft. long with temperature and humidity controlled at 73°F. and 50 percent RH.

In addition to the usual equipment, such as basis weight scales, calipers, choenomatic balances, mullen, tear, tensile and fold testers, this laboratory is completely equipped to perform all recognized tests on corrugated board and boxes.

One of the most important testing machines is the Hinde Dauch Flat crush tester which machine measures the force required to crush a circular sample of corrugated container board having an area of 10 square inches. This machine is also used to make a ring compression test on a sample of corrugated container board six inches long by ½ inches wide. The strip is formed into a ring and crushed in this machine, which measures the force required in crushing the sample in a direction parallel to the flutes. Both of the above tests are usually made on completed double lined board.

The flat crush test has shown an increase of almost 100 percent with the corrugating made from the new hardwood semi-chemical pulp as compared to that formerly made from kraft and groundwood.

Another machine of considerable value in testing container board, is the Torsion Tear Tester which was developed by the Institute of Paper Chemistry and is built by the Fox



The Defibrator produces superior pulp for wallboard, hardboard, insulating board, corrugating board, and roofing felt from all kinds of chipped wood or other fibrous ligno-cellulose materials such as bagasse or straw.

The process can be controlled to produce or duplicate any desired degree of freeness or fineness of fibre. Pulp is homogeneous with all fibres intact, but well separated. Yield is high and power costs are low.

AMERICAN DEFIBRATOR, INC. CHRYSLER BUILDING NEW YORK 17, N.Y. West Coast: A. H. Lundberg Orpheum Building, Seattle, Wash.

River Tool Co. This machine measure the tear resistance of corrugated container board along a scored line and along an unscored line. This shows the inherent tearing resistance of the board as well as the effect of scoring. The board is scored in a Famco Scorer, made by Famco Machine Co., Racine, Wis.

Resistance of the container board to puncture by sharp objects is shown by a General Electric Puncture Tester which measures force required to puncture the board with a triangular head.

The adhesive strength of gummed tape is measured by a McLauren gummed tape tester which measures the force required to pull a strip of gummed paper from a sample of liner after it has been moistened and allowed to set for five seconds.

Some of the machines are used to make tests on finished boxes. These may be made from regular blanks taken from the plant or the boxes made up by the laboratory.

A special machine is used to trim, score and cut slots in container board sheets to make blanks of any desired size up to four feet by four feet. Boxes may then be passed together, or put together with gummed tape or metal staples.

The laboratory is equipped to make three tests on the finished boxes as follows: drop test, drum test and crush test.

The drop tester consists of a platform which is adjustable from heights of six inches to five feet in six inch intervals. The platform consists of a double trap door released by a trigger to drop the box on a steel plate from the desired height. This test is normally made to determine the ability of the box to protect its contents and is thus usually filled with material similar to that which it was designed to carry, when making the test. The maximum height from which it may be safely dropped shows its quality.

The crush tester accurately measures the force required to crush an empty box.

The drum tester is seven feet inside diameter and contains the several types of hazards as specified by ASTM and TAPPI. The box with contents is placed inside the drum, which is then slowly rotated, causing the box to tumble and fall against the hazards. The time of rotation or number of turns before the box breaks open determines its quality.

It is expected that this laboratory will not only provide means for accurately and completely evaluating, corrugating, liner, container board and finished boxes but will also point the way to substantial improvement in quality in the future.

Equipment and Suppliers

DeZurik Regulator Controller System, Paper Mill Equipment Co., for Control of Consistence on Washer Outlet.

Sergent "Hingehead" Ventilator, Railway Power & Eng. Co., for Ventilation.

Passenger Elevator, Otis-Elevator Co., for Passenger Elevator.

Electric Speed Indicators, Reliance Electric Co.,

Relay Coils, Canadian Westinghouse Corp.

Auxiliary Relays, D.C. Relay, Canadian Westinghouse Corp.

Worm Gear Reducers, Hamilton Gear & Machine Co., for Stock Meter Drives.

Flex-Valves, Bristol Co., for Stock Meter Drives.

Motors, Starters & Rheostats, Canadian General Electric Co., for Stock Meter Drives.

Indicating Liquid Level Controllers, Bristol Co., for Stock Meter Drives.

General Electric Floodlights, Canadian General Electric Co.,

McAvity Stock Gate Valve, Peacock Bros., for Washer.

Control Station & Valves, Paper Mill Equipment Co., for Consistency Regulator.

Foxboro Control Panel, Level Recorder, Peacock Bros.

Cable Conveyor, Jeffrey Mfg. Co., for Woodyard Conveyor.

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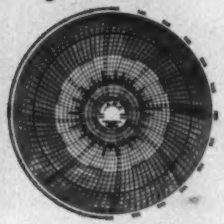

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No. 701 Jeffrey Bin Eye, Jeffrey Mfg. Co., for Chip Bins.
DeZurik Pressure Consistency Regulator, Paper Mill Equipment Co.
Proportioning & Recording Pressure Controllers, Peacock Bros. Ltd., for Instrumentation.
Milton Roy Duplex Pump, Consolidated Engines Ltd.
Swenson-Nyman Washer, Whiting Corp.
Elevators & Conveyors, Jeffrey Mfg. Co., for Chip Conveyors.
Chip Elevator Belt, Goodyear Tire Co., for Elevator.
Chip Screen Feeders & Drives, Canadian Allis-Chalmers Co., for Screening.
Semtile Stock Storage Chest, Canadian Stebbins Ltd., for Stock Tanks.
Propeller Agitators, Sherbrooke Machineries Co., for Stock Tank Agitators.
V-Belt Drives & Sheaves, Dodge Mfg. Co.
Dings Perma-Drum, Dings Magnetic Separator Co., for Blow Tank.
Sutherland Refiners, 48", Sutherland Refiner Ltd.
Asplund Defibrators, American Defibrator Co.
B. K. Reaction Chambers, Paper & Ind. Appliances Inc.
Milton Roy Chemical Pump, Consolidated Engines Ltd.
Planetorque Reducers, Sprockets, etc., Paper & Ind. Appliances Inc.
Reaction Chamber Drives, Paper & Ind. Appliances Inc.
Reliance Power Units, Paper & Ind. Appliances Inc.
Synchronous Motors, Canadian General Electric Co.
Electric Vibrators, Watson Jack & Co.
DeZurik Pressure Consistency Regulator, Paper Mill Equipment Co.
Synchronous Motors, Starters & Switches, Canadian General Electric Co.
Dillon Vibrating Chip Screens, T. A. Dillon Co.
Dings H. D. Magnets, Dings Magnetic Separator Co.
Belted Type Wood Chipper, Carthage Machine Co.
Induction Motor & Starters, Foulis & Bennett Co.

St. Laurent Laboratory Plant

Corrugator, S. Langston Co.
Double Liner, S. Langston Co.
Cut-off, Geo. Hooper Co.
Printer-Slotter, S. Langston Co.
Stitcher, Bliss Machinery Co.
Die Cutter, Tompson
Automatic Taper, S. & S. Corrugated Machinery Co.

St. Laurent Corrugating

Hinde & Dauch Flat Crush Tester, Testing Machines Inc.
Puncture Tester, General Electric Co.
Torsion Tear Tester, Fox River Tool Co.
Container Crush Tester, National Forge & Ordnance Co.
Drum Tester, Miller Bros. Co.
McLauren Gummed Tape Tester, Thwing Instrument Co.
Scoring Machine, Famco Machine Co.

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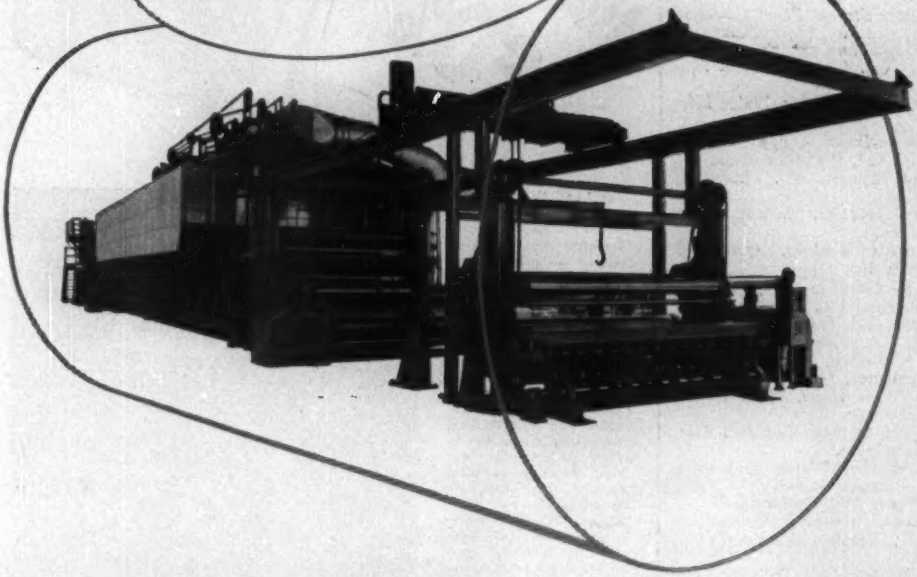

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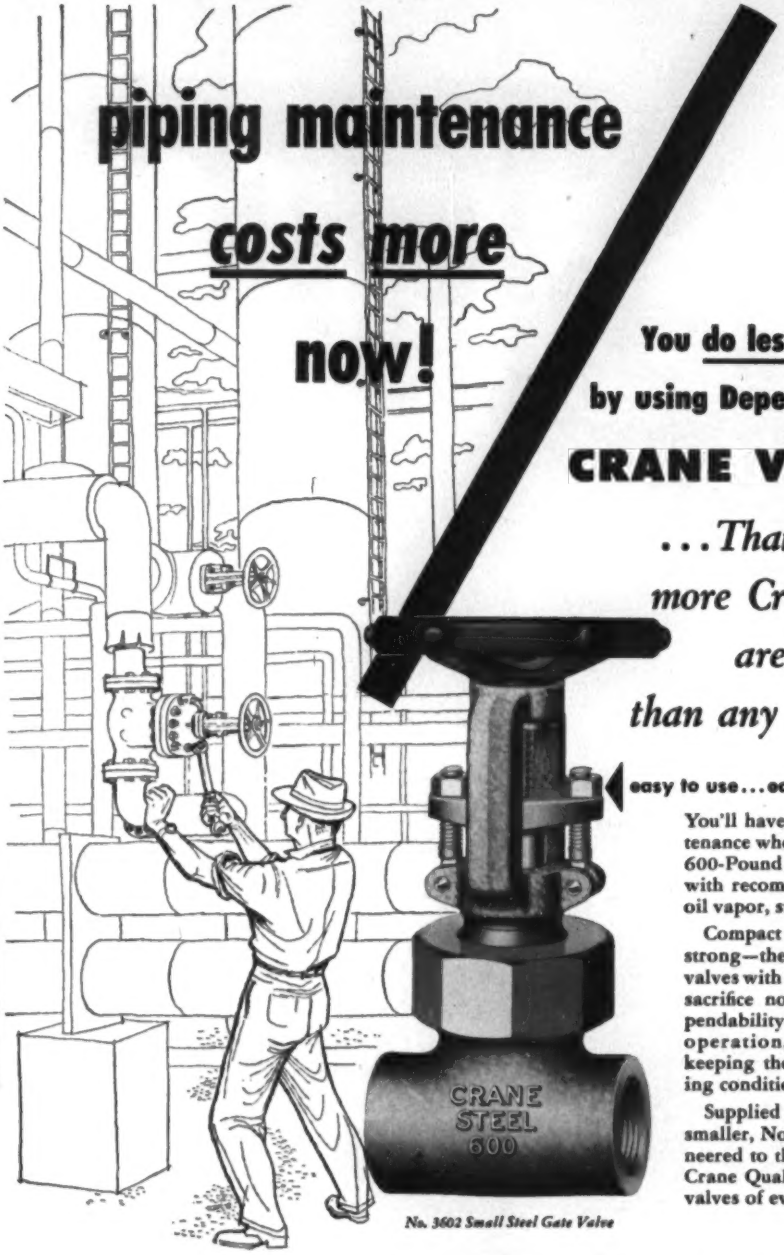

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Impact of Defense Requirements in the Paper and Twine Industry*

Clinton K. Royce[1]

I have been asked to discuss the impact of the defense program upon your industry and believe me, that request is no small order.

Military packaging is going to take a large share of your products in which the government is most interested. Obviously you make many things for the government other than packaging materials. But right now the availability, or more appropriately perhaps, the lack of availability of these packaging materials is causing us grave concern.

Any discussion of military packaging must of necessity begin with a full and complete analysis of the military concept of packaging; include information as to the present and contemplated military packaging organization; recognize our short-comings of the last war; show how we propose to eliminate those as well as anticipated new ones; and point up the need for the development of new materials, techniques and yes, even new concepts.

In the Department of Defense we regard packaging as the science of "PREPARATION OF MATERIAL FOR SHIPMENT." If some among you want to be technical you may add "AND STORAGE" to that. But the really important word in that definition is "PREPARATION." Thus we see that the term "packaging" as we use it in the military services covers the cleaning and preservation of material and its wrapping or cartoning in the unit of issue; it includes all the necessary cushioning, blocking and bracing to protect the material from damage resulting from shock; it embraces the design and engineering of shipping containers; it includes the match-marking of parts, assemblies and equipment and the marking of containers for shipment. In short, it covers the "PREPARATION OF MATERIAL FOR SHIPMENT."

World War II presented problems in Material Logistics which our Armed Forces had never before been called upon to meet. Not the least of these were those pertaining to the movement of vast quantities of material by all manner of means, over great distances, with an absolute minimum of personnel, transport and time.

It is interesting to not how many of these logistics problems find their solutions in the adequate packaging of military stores. The Navy's secret weapon of World War II was our Supply System—that system of mobile fleet support which enabled the Fleet to deliver those knock-out blows to the Japs during the final year of the war in the Pacific with such terrific force and with such frequency and regularity. But it is obvious that no carrier launched a plane, no submarine let go a torpedo and no bluejacket loaded a gun without the support of material which was preserved, packaged, packed and identified so as to assure maximum ultimate untility.

Equally obvious is the fact that our Defense Department is a huge and complex organization. We remember and it is to be hoped the picture is burned forever deeply into our memories, the utterly stupid competition which prevailed between the Army and the Navy during the last war in the procurement of materials which were in short supply. Wide variations in packaging requirements between the Army and the Navy and even between technical services of the Army and between bureaus of the Navy were the rule rather than the exception. The resultant confusion became such a dominant factor in delaying the movement of badly needed war material that corrective action was taken late in 1944 with the formation of the Navy Packaging Board, followed immediately with the establishment of the Army Packaging Board, and a few weeks later by the formation of a Joint Army-Navy Packaging Board. This latter board has since been replaced by a Packaging Agency of the Munitions Board whose principal function is the standardization and coordination of Army, Navy and Rir Force packaging effort. The Air Force has its Packaging Board now, and each of these three service Packaging Boards serves as a coordinating committee on packaging for the entire service it represents.

Let us at this point agree on one very important fact: this country has fought its last war in an economy of plenty; from here on we fight in one of scarcity. No longer is this great nation of ours one of inexhaustible resources. On V-J Day in 1945 half of the total timber harvest of the United States was going into containers and packaging materials. The excess production capacity of unbleached kraft paper in the United States is only *seven* percent above the 1950 production of 2,300,000 tons! Corrugated and solid fibre container board production in 1950 was within *four* percent of the nation's total capacity to produce! Last year, we produced waxed papers, cellophane, tinplate, aluminum, aluminum foil, steel, acetate and polyethylene at our full rated capacity and there wasn't enough to go around! And remember, in 1950 military requirements accounted for less than ten percent of the nation's total consumption of packaging materials.

Planning within the Defense Department for packaging of military stores presents a very real and complex problem. Actually we must plan for many eventualities; actions ranging all the way from the present activity in Korea to all-out global war.

The people who are administering the packaging program in the military services are extremely conservation conscious. We hear a lot these days about conserving paper and paperboard, but not nearly enough is being said about conserving TREES! We are determined that more containers must be produced from each tree. This means that more and more coarse papers are needed to make the kraft-veneer laminated panel board we will require for wood cleated boxes, to meet our needs for improved ration boxes, to provide the fibreboard boxes for clothing to save weight, cube and TREES. The paper industry is planning soundly to provide the additional tonnage we shall require, but only God can make a tree! New processes must be provided to make other fibres available for coarse paper production.

More reinforcing materials are going to be needed for strengthening and thereby broadening the use of pressure sensitive tapes, and paper laminations in order to make our military packages impervious to attacks of moisture, mildew and rot.

[1] Head, Packaging Section, Production Policy Division, Office of Naval Material Dept., Washington, D. C.

* Presented at the Annual Meeting of the Paper and Twine Association, French Lick Springs Hotel, French Lick, Indiana.

More paper and paperboard must be made available to enable the military services to make maximum use of the new volatile corrosion inhibitors.

The new and wider ranges of temperature which must be considered in our current planning place an even heavier burden performancewise upon the packaging materials we are using. Cement sacks which formerly were of multiwall construction employing asphalt-laminated kraft paper must continue to be made from coarse paper but asphalt cannot be used because it will not stand the low temperature requirements we are compelled to meet.

Intimate wraps of greaseproof papers will no longer hold the synthetic types of greases and preservatives which field conditions require us to use. New materials must be provided which will accomplish this.

We used millions of asphalt laminated waterproof case liners in World War II to protect the contents of boxes from damage caused by liquid water. Common sense dictates that more of these water barriers should be included as an integral part of the containers themselves.

As a matter of fact, most of the packaging materials used by the military services were developed during the last war and these were designed from a performance standpoint to meet a combination of high temperature and high humidity conditions. Now, in addition to these we must engineer our packaging materials to meet low temperature requirements. Some of the problems encountered here present a real challenge to paper manufacturers and converters. Particularly are the converters on the spot for we are largely dependent upon combinations of paper or those involving the use of paper with other components, and of course nearly always in fabricated form.

But just as the paper industry came through for use early in the last war when we needed a truly weatherproof fibrebox material, by developing V-Board and in a matter of only days, I feel confident that you people in this industry can again take our problems and come up with sound and practical solutions.

Now just a word as to what you can expect from us. In the Navy, no demands will be placed upon industry which involve radical departures from normal industrial procedures in that particular field, unless it can be established that the security of the country is in jeopardy. This is certainly not to be construed to mean that we intend to permit the material losses due to inadequate preservation and packaging we experienced in the early months of the last war. We learned a great deal about the preservation and packaging of war materials and we intend to put that know-how to practical use. But everything we ask industry to do in this connection will be based on first-hand knowledge of the facts; the policies which are so necessary in a program of this magnitude are being written by skilled technicians who know their business, in coordination with their counterparts in industry.

We are determined that our pleasant relationship with industry shall be maintained and we intend to keep it friendly.

Patent Abstracts

● In addition to abstracts on the technology of pulp, paper and related industries, miscellaneous abstracts which may provide useful information are included.

U.S. 2,549,048 — Liquidtight Carton and Method. Frank David Bergstein, Cincinnati, Ohio. Filed May 9, 1947—Issued April 17, 1951.

A carton having a wall, a perforation through said wall, an imperforate flap overlying and covering said perforation, and an interior casting of sealing substance of predetermined amount and substantial thickness covering said wall interiorly and also that portion of said flap uncovered by said perforation, so that when said flap is raised, a portion of said casting substantially outlined by the periphery of said perforation will break away from the remainder of said casting and form a plug in adhesive union with said flap, said plug being re-insertable in said opening.

U.S. 2,549,177—Sized Paper Composition Therefor, and Method of Making Same. Paul B. Davidson, Wilkinsburg, Pa., assignor to Strathmore Paper Company, Springfield, Mass. Filed March 21, 1949—Issued April 17, 1951.

A paper having a wet tensile strength in excess of 900 grams and a wet rub value above 5, and characterized in having a sizing predominantly consisting of reaction product of glyoxal and paper-maker's modified starch, said glyoxal being present as one-fiftieth to one-twentieth by weight of the dry weight of starch.

U.S. 2,549,220 — Coated Wrapping Tissue and Process of Making Same. Arthur Douglas McLaren, Brooklyn, N. Y., assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed February 13, 1948—Issued April 17, 1951.

In a process for producing moistureproof wrapping tissue having a base of hydrophilic, hydroxylated organic polymer, the steps comprising applying to a smooth, dense, non-fibrous base sheet of hydrophilic, hydroxylated organic polymer a solution of a compound of the Werner type in which a trivalent nuclear atom of a metal of the group consisting of chromium, manganese, iron, cobalt and nickel is coordinated with a carboxylic acido group from the class consisting of saturated aliphatic carboxylic acido groups having less than six carbon atoms in the chain and bearing at least one dipole group and aromatic carboxylic acido groups bearing at least one dipole group, the amount of solution used being sufficient to apply to said base sheet from 0.2% to 1.0% by weight of said Werner type compound, calculated as the oxide of the trivalent metal, based on the dry weight of said base sheet, drying the base sheet to remove solvent, and thereafter applying a coating of vinylidene chloride copolymer on said base sheet.

U.S. 2,549,386—Method for Folding Paper. Clarence J. Reigh, Altoona, Pa. Filed January 20, 1948—Issued April 17, 1951.

A method of folding a paper strip to form a web comprising progressively feeding said strip to an open box, positioning said strip on the bottom of the box, inserting a first fold plate in said box about a first portion of said strip, placing said first fold plate on said first strip portion above the bottom of the box, placing the next or second strip portion on top of the first fold plate, placing a second fold plate on top of the second strip portion, thereby forming a web edge comprising the juncture of the first and second strip portions, said web edge being rounded and in contact with a side wall of the box, removing said first fold plate from its position between said first and second strip portions, reinserting the fold plate above the free paper strip, pressing the reinserted fold plate downwardly against the underlying paper strip while the first and second strip portions are in immediate contact with each other and the web edge formed thereby is disposed against a side wall of the box, thereby setting a sharp crease at the web edge by combined crushing pressure of the first strip portion, second strip portion, and side wall.

U.S. 2,549,582—Opening Means for Regular Cartons. Robert M. Dunning, St. Paul, Minn., assignor to Waldorf Paper Products Company, St. Paul. Minn. Filed Aug 21, 1947 — Issued April 17, 1951.

An opening means for a carton having side walls connected in tubular relation and a top closure comprising a series of laminations, said opening means including a triangular tab portion forming a part of said closure, two sides of said triangular tab portion being defined by adjacent sides of said top closure, the third side of said triangular portion being partially defined by a pair of spaced aligned fold lines, and a tab portion on said triangular tab portion extending on the opposite side of said fold lines from said triangular tab portion and connecting the spaced ends of said aligned fold lines, said last named tab portion being foldable to one side the plane of said closure when the triangular portion folds to the other side of the plane of said closure.

U.S. 2,549,713—Method of Preparing Cellulose for Subsequent Treatment with Sodium Hydroxide. Joseph Seiberlich, Durham, N. H., assignor, by mesne assignments, to Research Corporation. Filed April 6, 1948—Issued April 17, 1951.

The method of increasing the absorptivity of cellulose for and its reactivity with sodium hydroxide which comprises immersing cellulose in a liquid consisting essentially of a chlorinated hydrocarbon having not more than three carbon atoms, and thereafter immersing the cellulose in a solution of sodium hydroxide.

U.S. 2,549,822—Binder for Foundry Compositions. Wilbur Euclid Koonce, Laurel, Miss., assignor to Masonite Corporation, Laurel, Miss. Filed November 24, 1947—Issued April 24, 1951.

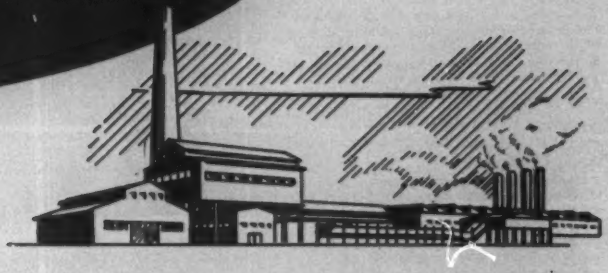
Molded products comprising finely divided inorganic material and a substantially water-insoluble binder thereof; said binder consisting

In The Paper Industry

WESTERN PRECIPITATION

COTTRELL EXPERIENCE IS UNSURPASSED

— Because Western Precipitation *pioneered* the first COTTRELL Installation in a Paper Plant!



In the design and installation of COTTRELL Electrical Recovery equipment there is no substitute for *experience*. And it is important to remember that the Western Precipitation organization not only pioneered the first successful COTTRELL installation made in *any* industry, *but also pioneered the first* COTTRELL *installation made in the paper industry.*

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Let us show you how Western Precipitation's consistent leadership in COTTRELL "know-how" assures you the most modern advancements and the most economical operations in YOUR electrical recovery operations.

◀ *Western Precipitation knows* COTTRELL *equipment as no other organization does, having pioneered the first commercial application of* COTTRELL *equipment made in any industry!*

◀ *Western Precipitation knows* COTTRELL *applications in paper operations because its widespread experience in this field dates from the pioneer* COTTRELL *installation made in the paper industry!*

◀ *Western Precipitation is able to give you an unbiased recommendation on your recovery requirements, for in addition to leadership in the electrical recovery field—Western Precipitation also leads in the mechanical recovery field with its widely-known* MULTICLONE *Mechanical Collectors. Western Precipitation installed the first MgO plant.*

Whether *your* operations call for *electrical* recovery . . . or *mechanical* recovery . . . or *both* working in combination—Western Precipitation can design and install the type best suited to your needs—under *one* guarantee and *one* responsibility!

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ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

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PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

Except for its wholly-owned subsidiaries, The Precipitation Corporation of Canada and The International Precipitation Corporation, Western Precipitation Corporation is not affiliated, either directly or indirectly, with any other organization in the electrical or mechanical recovery field.

essentially of the heat reaction product of the following components in about the proportions given:

Components:	Parts by weight
Pentosans and hexosans	60-80
Lignin	5-25
Non-sugar carbohydrates	5-15
Gums	2- 8

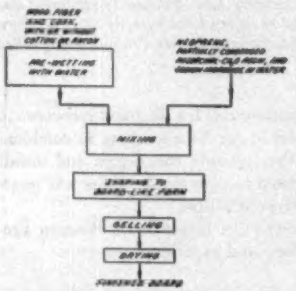
U.S. 2,549,931 — Bag or Envelope. Irwin A. Reiss, Los Angeles, Calif., assignor to Associated Paper Converting Corporation, Los Angeles, Calif. Filed June 23, 1948—Issued April 24, 1951.

A bag or envelope comprising body panels united at their side and bottom edges, one of said panels being provided with a foldable top closing flap, a foldable locking tongue carried by said flap, aligned openings in said body panels at the top portions thereof, the upper end of one of the openings terminating in lateral slits adapted to receive and retain the locking tongue in position when the flap is folded to close the bag and the tongue is inserted through the slitted portion of the opening and folded upward, the width of the opening between the terminal closed ends of the slits being not less than the width of the locking tongue at the base thereof.

U.S. 2,549,973 — Paper Shredding Apparatus. Matthew J. Klein, Maywood, Ill. Filed April 19, 1950—Issued April 24, 1951.

Paper shredding apparatus comprising a pair of rollers mounted for rotation on parallel axes, means to drive the rollers in opposite directions, the rollers being formed with series of circumferential projections terminating in smooth rounded outer edges and being mounted with the projections in spaced overlapping relation, the surface of at least one of the rollers being formed of rubber-like material.

U.S. 2,550,143—Construction Board and Method of Making Same. Ernst Eger, Los Angeles, Calif., assignor to United States Rubber Company, New York, N. Y. Filed November 29, 1947—Issued April 24, 1951.


WOOD FIBER AND CORK, WITH OR WITHOUT COTTON OR RAYON
PRE-WETTING WITH WATER
NEOPRENE, PARTIALLY CONDENSED PHENOL-FORMALDEHYDE RESIN, AND HEXAMETHYLENE TETRAMINE IN WATER
MIXING
STAINING TO BOARD-LIKE FORM
GELLING
DRYING
FINISHED BOARD

A fibrous board comprising a mass of randomly and initially loosely interlaced fibers bonded firmly together by a bonding medium comprising the dried gelled residue of a hardenable aqueous mixture comprising dispersed elastic rubbery composition selected from the group consisting of rubbery copolymer of butadiene and styrene in admixture with vulcanizing ingredients, rubbery copolymer of butadiene and acrylonitrile in admixture with vulcanizing ingredients, rubbery copolymer of isoprene and styrene in admixture with vulcanizing ingredients, and rubbery polymerized chloroprene, and dissolved partially condensed resin obtained by the partial condensation of a polyhydric phenol having hydroxyl groups in the 1- and 3-positions and an aldehyde and capable of setting in the aqueous condition to a friable solid gel and capable of being converted upon removal of water to a substantially infusible, substantially insoluble state, said mixture containing said rubbery polymer and said resin in such relative proportions that the polyhydric phenol content of said resin ranges from 3.8 to 16.8% by weight based on the weight of said rubbery polymer and containing at least 30% by weight of said rubbery polymer and said resin.

Can. 472,952—Methods of Incorporating Polychloroprene in Paper. Robert Henry Walsh, Woodstown, New Jersey, U.S.A., and William Warrin Pockman, Wilmington, Delaware, U.S.A., assignors to E. I. du Pont de Nemours and Company, Wilmington, Delaware, U.S.A. Filed April 6, 1949—Issued April 17, 1951

In the process of incorporating a polychloroprene elastomer latex, in which the particle charge is more negative than —100 millivolts, into an aqueous suspension of a cellulose paper pulp for modifying the physical characteristics of paper to be prepared therefrom, the steps which comprise adjusting the difference between the electrical charge on the paper pulp fibers and the electrical charge on the polychloroprene latex particles before mixing the two, to less than 50 millivolts, mixing the dispersions in which the electrical charges have been adjusted, coagulating the mixed dispersion and forming the paper sheet therefrom.

In the process of incorporating a polychloroprene elastomer latex, in which the particle charge is more negative than —100 millivolts, into an aqueous suspension of a cellulose paper pulp for modifying the physical characteristics of the paper to be prepared therefrom, the steps which comprise diluting the latex to a solids concentration of not greater than 30%, stabilizing the latex by the addition of a dispersing agent thereto and adding aluminum sulfate in an amount sufficient to bring the electrical charge on the polychloroprene elastomer latex particles to within 50 millivolts of the charge on the paper pulp fibers, adding the polychloroprene elastomer latex to the aqueous dispersion of the cellulose paper pulp, coagulating the mixed dispersion, and forming a paper sheet therefrom.

Can. 472,926 — Refined Hardwood Pulps and Processes of Refining Same. Benjamin G. Hoos, Berlin, New Hampshire, U.S.A., assignor to Brown Company, Portland, Maine, U.S.A. Filed Jan. 9, 1947—Issued April 17, 1951.

A process of refining preliberated hardwood pulp to ether-soluble contents less than 0.10% which includes the step of subjecting the pulp in the refining sequence to hot caustic soda refining liquor containing soap at a concentration exceeding about 0.11% based on the solution and regulating the concentration of caustic soda in the refining liquor to have an initial caustic soda concentration based on solution, of at least 1.5% for a 6¼% initial stock density ranging up to at least 2.7% for a 25% initial stock density.

A process of refining preliberated hardwood pulp to ether-soluble contents less than 0.10% which includes the step of subjecting the pulp in the refining sequence to hot caustic soda refining liquor containing soap at a concentration exceeding about 0.11% based on the solution at a stock density of 14% or less and at a caustic soda solution concentration so related to initial stock density as to produce a caustic soda residue on completion of refining exceeding 25% of the original caustic soda input.

A process of refining preliberated hardwood pulp to low ultimate caustic absorbency values which includes the step of subjecting the pulp in the refining sequence to hot caustic soda refining liquor containing soap at a concentration of about 0.33% based on the solution at an initial stock density of 14%or less and at a

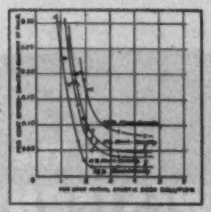


Fig. 1.

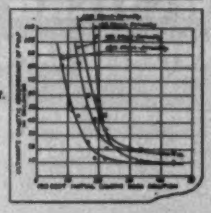


Fig. 2.

caustic soda solution concentration so related to initial stock density as to produce a caustic soda residue on completion of refining exceeding about 40% of the original caustic soda input.

Can. 473,075 — Expansible Winder Shafts. Edward H. Tidland, Camas, Washington, U.S.A. Filed Dec. 5, 1950—Issued April 24, 1951.

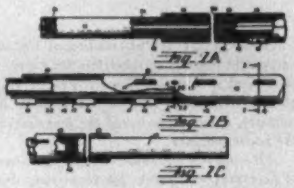


Fig. 1A

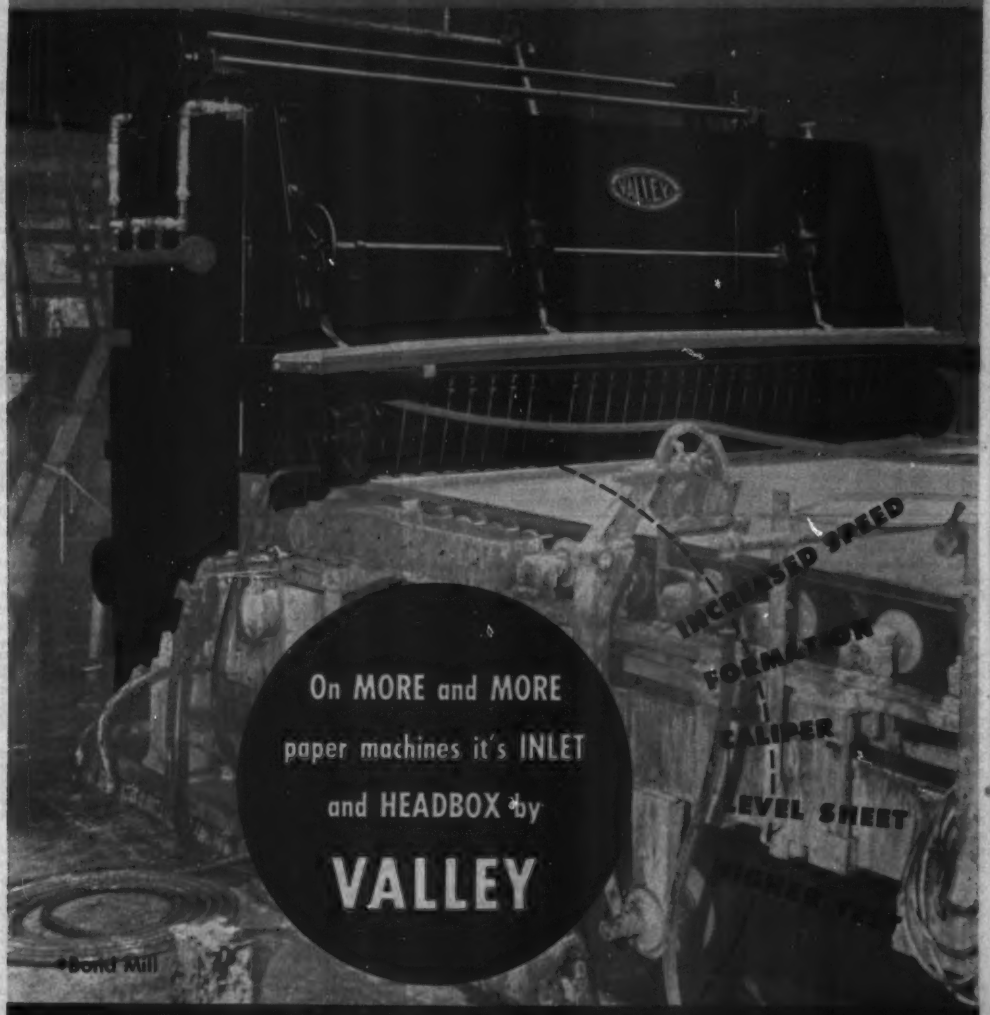
Fig. 1B

Fig. 1C

In an expansible shaft of the character described, a main outside tubular member, a journal secured to and extending from each end of said main member, an interior channel extending through one of said journals and leading into said main member, a plurality of identical longitudinal segments mounted within said main member, each segment extending substantially the entire distance between said journals, spaced, longitudinally-aligned raised portions extending radially outwardly from said segments, holes in said main member for said raised portions permitting radial movement of said raised portions and therewith of said segments in said main member, the radial length of said raised portions being slightly greater than the radial thickness of said main member, the outer face of each segment comprising a curved surface of substantially the same radius of curvature as the interior of said main member, an inner tube of rubber located within said main member and extending over the inner faces of said segments, said inner tube having a tubular connection at one end extending through said journal channel, valve means at the outer end of said tubular connection for said inner tube permitting air under pressure to be delivered into said inner tube and held in said inner tube and released from said inner tube when desired, and spring means located within said main member causing said segments to be normally spaced from the inside wall of said main member when said inner tube is partly deflated, whereby inflation of said inner tube will cause the outer ends of said raised portions of said segments to protrude beyond the outside surface of said main member and thereby expand the effective size of said shaft.

VERSATILITY---

THE MEANS TO MANIPULATE FORMATION



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PRICES

The prices below reflect market quotations in New York at the mill level on standard grades. Does not include spot offerings.

PAPER AND BOARD

Standard News, Delivered Ports
Rolls, contract, per ton $105.00/116.00
Sheets ..... 118.00/ —

F.o.b. Mills. C.l. Frt. allowed, dock, N. Y.

Kraft— pr cwt., 40# base wgt.
Standard Wrapping Rolls ..... $7.75/ —
No. 1 Wrapping Rolls 8.25/ 8.50
Standard Bag ..... 7.50/ —

Tissues— per ream 24x36 (480) 10 lbs. 2500 lbs or more

Wh. No. 1 Prd.	$1.95	/$2.25
Wh. No. 1 MG	2.10	/ 2.40
Wh. No. 1½	1.85	/ 2.15
Wh. No. 2	1.85	/ 2.15
Kraft Anti-Tar 20x30	1.85	/ 2.15
White Anti-Tar 20x30	1.95	/ —

Toilet— per case of 100 rolls—1 M sheets

Unbleached 4½x4½	$8.00/$8.25
Unbleached 4½x5	6.60/ —
Bleached 4½x4½	10.00/12.50
Bleached 4½x5	9.85/ —

Per Case of 50 rolls—2000 sheets

Unbleached 4½x4½	$8.00/$9.75
Bleached 4½x4½	4.95/ —

Per Case of 100 rolls—1000 sheets

Facial, 4½x5, 2-ply	$8.95/10.65

Paper Towels—per case of 3780

Wh. Jr. M'tif'd 9½x9½	$5.75
Br. Sr. M'tif'd 9½x12	4.10
Br. Jr. M'tif'd 9½x9½	3.60
Br. Jr. Spl. fold 9½x10½	3.65
Bichd. 7½x11, 24/25 rolls	$7.00/7.35

Manila, per cwt.

No. 1 Jute Tag, 100-lb., sheets*	$19.55/21.55
Reg. Jute M.F. 40-lb., sheets*	18.00/20.00
Wrapping Manila	8.75/10.50
Printing Manila	10.50/12.00

* Less usual allowance for rolls.

Gummed Tape—per bbl., 500 bdls. or more

90-lb. 375 ft. GSI	$7.20	/ —
60-lb. 600 ft. GSI	7.20	/ —
35-lb. 800 ft. GSI	8.28	/ —
35-lb. 500 ft. GSO	6.21	/ —

MARKET WOOD PULP

Third Quarter Contract Prices, Per Short Air-Dry Ton

	Varying freight allowances		On Dock Atlantic Ports		
	*U. S.	Canadian	*Swedish	*Finnish	*Norwegian
Groundwood	$92.50/ —	‡$95.00/100.00			
Sulfate, Bleached	145.00/ —	190.00/200.00	$230.00/ —	$230.00/ —	$230.00/ —
Semi-bleached Sulfate	140.00/ —				
Sulfate, Unbl.	132.50/ —	145.00/175.00	200.00/ —	200.00/ —	
Sulfite, Bichd.	140.00/ —	160.00/175.00	225.00/ —	225.00/ —	225.00/ —
Sulfite, Unbichd.	132.50/ —	150.00/160.00	200.00/ —	200.00/ —	
Sulfite, Unbl'd (Glassine)		164.00/ —			
Soda, Bichd.	140.00/ —	155.00/160.00			
Sulfite Screenings	72.50/ —				
Sulfate Screenings	67.50/ —				
Groundwod Screenings	60.00/ —				
Unbichd Sulfate Siderurgs	132.50/ —				
Stand. News. Siderums	92.50/ —	106.00 —			

* OPS Ceiling, CPR 49 ‡ F.o.b. Shipping Point.

Boards, per ton—

Filled News	$107.50/ —
Plain Chip	105.00/107.50
Bichd. Mla. L-d. Chip	147.50/ —
White Pat. coated .020	170.00/ —
Kraft Liners 42 lb.	115.00/117.50
Kraft Corr. .009	122.50/126.00
Binders Boards	137.50/140.00

The following prices are representative distributors' resale prices:

Rag Content Bonds and Ledgers— White, 20 lb.

Bonds	4 Cnts. per cwt.
100% Rag Ex. No. 1	$70.45/$75.90
100% Rag	62.65/ —
75% Rag	48.15/ —
50% Rag	38.90/ —
25% Rag	31.65/ 33.00

Ledgers	4 Cnts. per cwt.
100% Rag Ex. No. 1	$72.65/$72.80
100% Rag	63.90/ —
75% Rag	49.40/ —
50% Rag	40.20/ —
25% Rag	33.00/ 34.30

Sulphite Bonds and Ledgers White, 20 lb.

Bonds	4 Cnts. per cwt.
Watermarked	$19.00/$20.50
Plain	18.05/ 19.50

Ledgers	4 Cnts. per cwt.
Watermarked	$20.30/$21.80
Plain	19.35/ 20.80

White Book

Conversion Coated	Case per cwt.
No. 1	$23.40/$24.60
No. 2	21.90/ 23.40
No. 3	20.40/ 22.40
Machine Coated	
No. 1	$18.15/$18.40
No. 2	16.15/ 16.65
Uncoated	
No. 1 Antique (Watermarked)	$18.65/$19.15
Offset	17.40/ 19.90
A Grade E. F.	17.40/ 18.15
A Grade S. C.	18.15/ 18.65
B Grade E. F.	17.65/ —
B Grade S. C.	16.90/ 18.40

‡ Indicates a price change.

WASTE PAPER MARKET

The following quotations were gathered from major dealers in each market. They are an indication of the price range in which volume tonnage was moving on the date specified. Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.)

	New York June 6	Philadelphia June 7	Boston June 16	Chicago June 1
No. 1 Mixed Paper	$18.00/ 24.00	$21.00/ 24.00	$19.00/ 21.00	$20.00/ —
Boxboard Cuts	19.00/ 25.00	21.00/ 24.00	26.00/ —	23.00/ —
Mill Wrappers	19.00/ 30.00	25.00/ 30.00	22.00/ 30.00	22.00/ —
No. 1 News	22.00/ 25.00	22.00/ 25.00	— /22.00	22.00/ —
Over-issue News	28.00/ 35.00	30.00/ 35.00	23.00/ 24.00	25.00/ —
Corrugated Containers	64.00/ 68.00	58.00/ 62.00	64.50/ 66.00	52.00/ —
New Corrugated Cuts	Nominal	60.00/ 65.00	55.00/ 65.00	62.00/ —
Double Kraft Ld. Corr. Cuts .*	115.00/120.00	105.00/120.00	120.00/140.00	120.00/ —
100% Kraft Corr. Cuts .*	140.00/165.00	125.00/135.00	130.00/170.00	140.00/ —
Used Kraft Bags .*	85.00/105.00	80.00/ 85.00	85.00/116.50	65.00/ —
No. 1 Brown Kraft Paper	70.00/ 75.00	90.00/ 95.00	90.00/110.00	65.00/ —
Super Resorted Br. Kraft .*	100.00/105.00	100.00/105.00	100.00/125.00	90.00/ —
New Br. Kraft Env. Cuts .*	160.00/180.00	160.00/175.00	160.00/180.00	130.00/ —
New Br. Kraft Cuts .*	150.00/175.00	130.00/140.00	150.00/180.00	140.00/ —
No. 1 Gdwd Shvs.	65.00/ 70.00	50.00/ 65.00	75.00/ 85.00	55.00/ —
White Newsblanks	100.00/110.00	80.00/ 90.00	90.00/100.00	80.00/ —
No. 1 Flyleaf Shvs. .*	80.00/120.00	80.00/ 85.00	95.00/110.00	100.00/ —
No. 1 Soft Wht. Shvs. .*	160.00/190.00	170.00/175.00	175.00/195.00	175.00/ —
Super Soft Wht. Shvs. .*	190.00/200.00	190.00/200.00	190.00/210.00	185.00/ —
Hd. Wht. Shvs. .*	185.00/210.00	190.00/215.00	190.00/215.00	180.00/ —
Hd. Wht. Env. Cuts .*	200.00/245.00	200.00/225.00	200.00/235.00	190.00/ —
New Manila Env. Cuts .*	140.00/150.00	160.00/165.00	140.00/165.00	115.00/ —
Col. Tab Cards .*	110.00/120.00	115.00/120.00	95.00/150.00	100.00/ —
Manila Tab Cards .*	170.00/185.00	165.00/190.00	160.00/200.00	165.00/ —
No. 1 Mixed Ledger .*	95.00/105.00	100.00/105.00	87.00/110.00	100.00/ —
White Ledger .*	130.00/140.00	125.00/130.00	125.00/140.00	125.00/ —
No. 1 Book & Mag.†	41.00/ 45.00	35.00/ 40.00	40.00/ 60.00	25.00/ —
No. 1 Rep'd. Hvy. Books‡	50.00/ 55.00	50.00/ 60.00	60.00/ 75.00	50.00/ —

* GCPR Ceiling. † Includes Time & Life; no coarse groundwood. ‡ Net to exceed 10% groundwood.

RAG MARKET

New Domestic Cotton Cuttings
OPS Ceiling Price, CPR 28
Delivered Mill Basis

Add 7½% Dealer Commission

No. 1 White Shirts	$21.00
No. 1 Unbichd. Muslins	21.00
Bichd. & Unbichd. Underwears	21.00
Bichd. Canton Flannels	21.00
No. 1 Light Silesias	16.00
No. 1 Light Prints	11.50
No. 1 Blue Overalls	14.50
Suntan Khakis	11.50

Add 10% Dealer Commission

Fancy Shirts	$10.00
Indigo Blues	10.00
Mixed Khakis	8.00
Corduroys	8.00
Cottonades	8.00
No. 1 Washables	6.50

Old Domestic Cotton Rags
(Prices to Dealers, f.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$5.00/$5.50
Cotton Pants & Overalls	4.25/ 5.00
Thirds and Blues, Repacked	3.75/ 4.00
No. 1 Roofing Rags	2.70/ 2.90
No. 2 Roofing Rags	2.00/ 2.10
No. 3 & 4 Roofing Rags	1.90/ 2.00
Roofing Bagging	1.90/ 2.00

Bagging
(Prices to Dealers, f.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny	$6.00/ 6.50
Domestic Gunny, No. 1	6.00/ 6.50
Heavy Wool Tares	8.00/ 8.25
Foreign Manila Rope	8.50/ 8.75
Domestic Manila Rope	9.00/ 9.25
Jute Strings	6.00/ 6.50
No. 1 Sisal Strings	8.00/ 8.25
Paper Mill Tares	5.25/ 5.75
Foreign Scrap Burlap	5.00/ 5.25
Domestic Scrap Burlap	6.50/ 7.00
Austr. Wool Pounces	7.50/ 8.50
New Burlap Cuttings	7.50/ 8.00

MATERIALS

Aluminum, sulfate:		
coml. bags, wks. cwt.	1.65	
iron-free c.l.	3.25	
Alcohol, ethyl:		
tax free, dms. c.l. gal.	1.01	/ 1.05½
deld. East Miss.		
Alcohol, methyl:		
Synthetic, Zone 1, dms.		
c.l. fit. alld. gal.	.44	
Casein, acid-prec.:		
dom. sh. pt. c.l. lb.	.39	/ .41½
imp. ex. dock lb.	.29	/ .40
Caustic soda:		
c.l. wks. solid, 76%, cwt.	3.35	
flak. & grd. 100-lb. drums	3.75	
liquid 50% tanks	2.55	
liquid 70% tanks	2.65	
China clay:		
dom. air-float. filler, c.l. wks. ton	10.00	
water-washed, lump, filler	11.00	
coating	17.60	/30.50
imported, ex whse...short ton	15.20	/28.25
Chlorine:		
single-unit tanks, works. cwt.	2.70	
multi-unit cwt.	3.25	/ 4.40
Formaldehyde:		
USP, inh. dms, c.l. wks. lb.	.0625/	.0675
l.c.l., E. wks.	.0675/	.0725
Fuel oil:		
Bunker C, No. 6 Cal. hvy		
tanks, refinery bbl.	1.95	/ 2.15
light bbl.	2.00	/ 2.25
Hydrogen peroxide:		
USP, 35% clys. E. of Miss. lb.	.23½/	.26½
Lime:		
hydrated, bags, wks. Buffalo ton	13.50	
Rosin:		
B gum, drms, c.l. Savan. cwt.	8.60	
G, H, I, K cwt.	8.79	/ —
FF, wood, dn. cwt.	7.30	/ —
Rosin size:		
70%, gum & pale grds, tank cars, south, sh. pt. cwt.	6.80	/ 7.00
Salt cake:		
dom. bulk, c.l. wks. ton	17.00	
wks. frt. all. ton	20.00	/22.00
Soda ash:		
light, 58%, bags, wks.	1.32	
bulk cwt.	1.20	
Sodium silicate 40°:		
turbid. c.l. wks. cwt.	1.30	/
l.c.l. wks.	1.60	/ 1.85
Sodium peroxide:		
dms. c.l. E. of Miss. lb.	.21	
l.c.l. do. lb.	.21½/	.22
Soybean, protein:		
chem. isol, wks. c.l. lb.	.24	/ —
Cinn. and Chic.		
Sulfuric acid:		
60° Be. clys. cl. wks. cwt.	1.75	/ —
l.c.l. wks. cwt.	2.05	/ 2.85
Sulfur:		
crude, c.l. mines, contract, long ton	21.00	/22.00
f.o.b vessels Gulf	22.50	/23.50
Export, f.o.b. Gulf	25.00	
Sulfur dioxide:		
liquid, coml. cyl. wks. lb.	.09	
multi-unit cars lb.	.0535	
Starches:		
pearl corn, bags, c.l. wks. cwt.	6.02	/ —
white dextrines, c.l. wks. cwt.	7.41	/ —
potato, Idaho, c.l. wks. cwt.	5.50	/ —
potato, Maine, c.l. wks. cwt.	5.75	/ —
tapioca, conv. dextrines cwt.	7.75	/ 8.50
low, Siam, on dock N. Y.	5.75	/ 6.00
Talc:	nominal	
domestic, 50-lb. sacks, c.l. wks. ton	25.00	/30.00
Titanium dioxide:		
anastase, c.l. deld., bags. lb.	.21	/ .21½
l.c.l. deld. lb.	.22	/ .23½
rutile, c.l. deld. lb.	.23	/ .23½
l.c.l. deld. lb.	.24	/ .24½

IRISH IMPORTS AND EXPORTS

Imports into the Republic of Ireland during March, 1951 classified as paper, cardboard etc., were valued at £477,542, as against £326,078 in March, 1950.

This brings the value of these imports for the first three months of 1951 to £1,349,659 as against £1,105,688 in the corresponding period of 1950.

Of the March, 1951 imports, paper-making materials amounting to 1,455 tons accounted for £77,220, against 1,060 tons, valued at £30,392 in March, 1950.

Imports of coated printing paper in March, 1951 amounted to 2,440 cwt., valued at £15,691, against 1,055 cwt., valued at £6,293 in March, 1950.

Newsprint imports in March, 1951 were 17,661 cwt., valued at £34,310, as against 8,311 cwt., valued at £14,461 in March, 1950.

Imports of other non-coated printing paper for the month under review were 2,674 cwt., valued at £14,826 against 5,629 cwt., valued at £19,379 in March, 1950.

Imports of writing paper in large sheets were 1,689 cwt., valued at £8,808 in March, 1951, and 3,968 cwt., valued at £12,840 in March, 1950.

Other values for imports in this group, published in the *Trade Statistics* issued by the Central Statistics Office in Dublin, include:

Article	VALUE March, 1951	March, 1950
Packing and wrapping paper	£7,454	£3,983
Tissue paper	£7,436	£2,756
Oiled, waxed and other waterproof paper	£22,192	£12,650
Cigarette paper	£3,876	£1,879
Greaseproof paper	£10,329	£3,321
Imitation parchment	£7,309	£6,031
Gummed paper	£4,041	£3,602
Wall and ceiling paper printed	£5,014	£2,542
Cellulose wrapping paper, etc.	£20,438	£13,277
Other paper	£15,475	£6,456

Imports of empty containers and parts were valued at £33,185 in March, 1951, and £32,514 in March, 1950.

Cards other than playing cards and post-cards, were valued at £2,681 in March, 1951 and £2,705 in February, 1950.

Fillers and flats for egg boxes imported in March, 1951, were valued at £13,406, against £2,645 in March, 1950.

Imports of strawboard, not worked or corrugated, rose to £21,623 in March, 1951 from £17,795 in the corresponding month last year; and other cardboard, etc., in the piece imported valued at £105,158 in March, 1951, against £79,732 in March, 1950.

In March, 1951, £67,346 worth of paper and cardboard was exported from the Republic of Ireland, against £14,801 in March, 1950.

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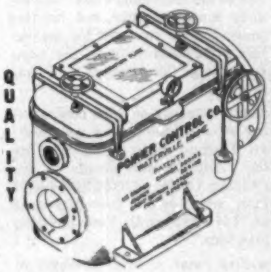

DEPENDABILITY

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WATERVILLE, MAINE

The total value of Irish exports for the first three months of 1951 is £174,411, as against £43,069 in the corresponding period of 1950. Of these exports, paper-making materials accounted for £3,300 in March, 1951 and £2,481 in March, 1950. Exports of cardboard and pasteboard in the piece were valued at £10,733 in March, 1951 and nil in March, 1950.

Re-exports of paper, cardboard, etc., rose to the value of £5,226 in March, 1951 from £376 in March, 1950.

This brings the re-exports to £7,143 for the first three months of 1951, as against only £2,827 in the corresponding period in 1950.

NEW LITERATURE

Wheelco Instruments Co. Bulletin MPC-1, "The New Wheelco Multipoint Capacilog." Explains and illustrates how up to 6 permanent records of industrial processes may be obtained on one strip chart. Includes specifications and listing of models.

American Coal Burner Co. Sales copy. Highlights new boiler room stoker feeder conveyor.

Bakelite Co., Div. of Union Carbide and Carbon Corp. Booklet, "Bakelite Polyethylene for Paper Coatings," 32 pp. Technical data and illustrations describing the extrusion-lamination process in coating paper. Presents material through text, tables and graphs, specifically treating such subjects as chemical resistance, permeability, solubility and compatibility.

Clark Equipment Co., Industrial Truck Div. Booklet, "Safety Saves", 24 pp. Shows how sound caution and strict observance of sensible safety rules pay off for the fork-truck driver as well as for his employer.

Gardner, Henry A., Inc. Brochures, "Ceramic Standards for Color, Reflectance and Gloss"; "1951 Model Gardner Glossmeters"; Interchemical "Gallons Content Nomograph for 55-gallon Drums."

Defense Production Administration. Booklet, "Mobilization Guide for Small Business." Covers such subjects as: defense contracts and procurement; materials assistance; loans and tax privileges; management assistance; and conversion assistance.

Du Pont de Nemours, E. I., & Co. Booklet, "This is Du Pont—The Story of Research." Designed to show the significance and importance of industrial research. Highlights articles "The Story of Research" and "The Impact of Research."

General Electric Co. Booklet GEA-5597, "Carbon Brushes for Electric Equipment", 28 pp.

Glycerine Information Service. Release sheet, "Glycerine Facts." Covers such topics as: Production and consumption; studies on anylose films; status as prescription ingredient; production of useful polymers; etc.

B. F. Goodrich Co. Booklet, "9 Ways to Get More Miles Out of Truck Tires." Covers subject in concise text, well illustrated. Includes tables.

Hauser-Stander Tank Co. Booklet, "This Great Age." Presents information concerning the present day importance of wood tanks in our domestic and world economy.

Pennsylvania Salt Mfg. Co. Bulletin, "Hydrogen Peroxide." Technical data presented in non-technical language. Includes recommendations on the use, handling, shipping and storing of this bleaching agent.

Schutte and Koerting Co. Bulletin 6A-SP, "SK Recooling Spray Nozzle Systems." Technical data with diagrams of typical spray pond arrangements. Also describes SK Louvre Screens.

Smith, A. O. Corp. Bulletin. Shows all of their authorized motor service stations in the country. Includes map and illustrations.

South Bend Lathe Works. Handbook, "How To Run A Drill Press", price 25c, 32 pp. Covers care, operation, and maintenance including illustrations which give the name and function of all important parts and correct adjustment of each unit. Detailed instructions and illustrations on grinding the drill point so it will cut properly.

Tremco Mfg. Co. Bulletin, "Planned Maintenance for Tar and Gravel Roofs." Techniques for the removal of gravel by machine and the mechanical pumping of roofing materials from the ground to the roof.

Tour, Sam & Co., Inc. Brochure, "All Under One Roof." Explains the scope of services available from this organization and touches on such subjects as research, product development, production methods, evaluations, laboratory testing and analysis, etc.

Yarnall-Waring Co. Bulletin N-617, "Spray Nozzles—for Water Cooling, Air Conditioning and for General Industrial Uses."

Hungerford & Terry, Inc. Catalogs, Bulletin IS, "Inversand Zeolite Water Softeners"; Bulletin BFT-1, "Boiler Feedwater Treatment"; Bulletin PF, "Pressure Type Water Filters"; Bulletin 23, "Hungerford Gravity Air-Water-Wash Filter"; Bulletin DM, "Demineralizing Units"; Bulletin G-1, "The Coagulator"; Bulletin B-1, "Water Treating Equipment for Beverage & Ice Plants"; Bulletin AF-1, "The Acticar Filter; Bulletin FF-1, "Ferrosand Filter."

Towmotor Corp. Sales copy, Job Study No. 104, "Cleaning Products."

Shows increased plant capacity with a carefully planned integrated handling system. Includes on-the-job photos.

Black-Clawson Co. Bulletin No. 1-BC, "Drives." Illustrates and describes Spiral Bevel, Hypoid, Calender Reversing, Extended Shaft, Double Reduction, and Inching gear drives; also Airflex and Multiple Disc Clutches.

Morse Chain Co. Catalog, No. C72-51. Highlights new HY-VO power transmission drives. Discusses operating principles, the highlights of new design principles, what the drive will do in the field of high-speed, heavy-duty power transmission, capacities, installation and lubrication procedures.

NEW MATERIALS

Mersize RM

Commercial production of a new, more convenient form of Mersize has been announced. Designated Mersize RM, the new product eliminates mixing operations and is easier and more economical to handle, it is said. Used as a complete replacement of rosin size, the manufacturer claims that Mersize RM effects savings on the order of 30 to 35 percent in cost; that 100 pounds of Mersize RM replaces 200 pounds of rosin size for the same sizing results.

Antara Brightener

Antara Brightener products are "optical" whitening agents of high activity. Added to a soap or detergent compound, the brightener makes white fabrics whiter and colored fabrics brighter because of practical application of a scientifically sound principle. These brighteners are colorless, fluorescent, direct "dyestuffs" and, like the more common colored agents of this class, exhibit high affinity for textile fabrics. They exhaust readily from extremely dilute solutions, spreading evenly on the treated fabric. Examination shows white fabrics so treated to be *whiter*, colored fabrics *brighter*, it is said. Due to their compatibility with cellulosic material, they can also be employed for the brightening of starches and for the whitening of high quality paper, the manufacturer states.

Liquid Tite #69

Liquid Tite #69 is an outstanding development in adhesives. Specially formulated for the manufacture of spiral and convolute containers for coffee and other hot liquids. It is a cream colored liquid of medium viscosity described as clean running, does not impart residual odor, and ideally suited for tube winding machines. Exceptionally fast setting, it can be used on high speed machines. Containers made with LIQUID-TITE Adhesive #69 are said to pass the standard test for resistance to boiling water. Two minutes after the containers came off the machine, they were filled with boiling water and no leakage resulted even after standing 40 minutes.

NEW EQUIPMENT

Newsprint Trackage System

The modern way to move newsprint and other heavy paper rolls is via Epco, a trackage system that is installed as an integral part of the floor, and is so tough that hand and power trucks can cross it without damaging trackage or trucks. Epco is a network of tracks running from platform to storeroom to presses. At junctions, rolls can be swung around quickly on easy-action turntables and headed in the right direction. Rolls weighing 1200 to 1800 pounds are placed on flat dollies and shoved along the trackage. Features one man operation, minimum roll damage, and floor protection.

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Beta Ray Gauge

A new Beta Ray Gauge for continuously recording variations in weight per unit area or thickness of a wide variety of moving sheet materials directly on the production line is available. Steel, aluminum, brass, rubber, plastics, paper, and coated textile manufacturers are a few examples of those who can profit by the use of such a gauge. Outstanding advantages of this Beta Ray Gauge are its ability to measure accurately and continuously to a few millionths of an inch without contacting the material being gauged; to operate continuously without any standardization or recalibration by plant personnel; its insensitivity to steel composition changes; and its high degree of stability under adverse plant conditions including temperature variations, dirt, moisture, shock, and vibration.

The gauge utilizes radioactive materials produced under the direction of the Atomic Energy Commission at Oak Ridge. Basic components are a source of beta radiation, a radiation detector and a recording device. The material being measured is run through a gap between the source and detector, preventing a portion of the source radiation from reaching the detector in proportion to the weight per unit area of the material. Readings directly in terms of thickness can be made on materials of constant density. Gauge readings are unaffected by variations in chemical or physical characteristics of the product being measured. Operation is extremely simple and consists of merely changing settings on two dials recessed in the console whenever manufacturing thickness specifications are changed. These dial settings are made with a calibration chart supplied with each gauge. No other adjustments are ever required since causes of errors are eliminated periodically by automatic standardization without attention by the operator. This is the only Beta Ray Gauge available which standardizes automatically for all causes of drift or erroneous readings. A scanning mechanism can be used with the gauge to permit readings across the width of a sheet. Scanning can be carried out continuously or intermittently and the detector unit can be set to remain in a stationary position at any point along the scanning width.

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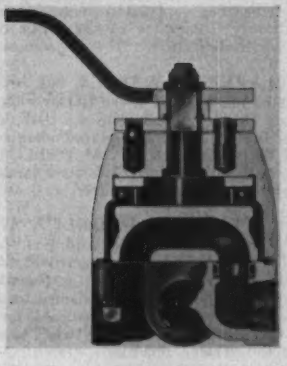
Extreme Pressure Valve

The patented sealing principle employed in Barksdale Valves was specifically developed for extreme pressure control. It is commercially known as the "Shear-Seal" principle, it provides industry with a 4-way valve that will work on 6000 psi (or even 1000 psi) water and stand up for any reasonable length of time.

A pressure balanced, self-aligning, tubular valve seat is designed to keep perfect contact with the surface of an optically flat porting disc. The rotary movement of this disc (or rotor) opens and closes the flow passages. During the absence of fluid pressure, a heavy marcel springwasher maintains the

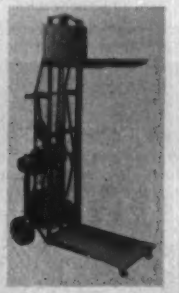


contact between sealing surfaces, while a predetermined hydraulic force acts on the seal under extreme pressure. Fluid flow is always through the hole in the center of the "Shear-Seal," never across sealing surfaces, an important characteristic particularly in the control of dirty high velocity fluids, because it eliminates the problems of scoring and wire drawing. The wiping and lapping action between the sealing members during each operation actually improves the sealing properties of the valve with use, it is said.

Unusually low handle loads are the result of "Shear-Seal" design, controlled hydraulic load on seals, aided by large thrust bearing. For example a 1" valve requires only a 9 pound force at 3000 p.s.i., 15 pounds at 6000 p.s.i.

Battery Operated Stacker

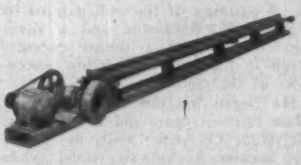
A combination fork lift-stacker and hand truck with elevating platform operating from a standard 6-volt automobile battery, is being introduced. The new unit has a battery activated motor mechanism which operates the hydraulic lift. What little drain is placed on the battery under capacity-use is replaced by the built-in charger during off-hours. The simple built-in charger can be plugged into any outlet.



The stacker has a platform 21" long x 18" wide as standard, is highly maneuverable, and will lift a load of 750 lb. to a loading height of 55" in 6 seconds, it is stated.

Oscillating Trough Conveyor

A new conveyor of oscillating trough type, called Flexmount, is announced. The conveyor construction is said to be ideal for handling foodstuffs, chemicals and other material where cleanliness, contamination or corrosion is a factor; and that very hot, sharp, jagged or oily material, such as steel chips and turnings, are handled with virtually no wear of metal troughing. Escape of dust or gases can be eliminated by the addition of a metal cover with flexible connections at loading and discharge points. The design features the use of a one-piece metal trough with high sides, supported on simple one-piece flexible members which function as springs in absorbing the energy of the trough movement at each end of the stroke. Motion



is imparted to trough by a roller-bearing, constant-stroke eccentric. Uniform, continuous flow of material is said to be assured regardless of overloads or surges, and the handling action is so gentle and easy that there is no degradation of thin or brittle material.

The trough oscillates at the natural frequency of the Flexmounts, reducing the reaction forces on the drive to a minimum and requiring only the horsepower necessary to convey the material.

Material Handling Unit

A new low-cost planning unit for studying material handling problems has been announced. Available in three sizes, the Triometric Material Handling Unit aids in quick analysis of current material handling practices, their effectiveness and ways to correct their defects. The unit comprises tools and planning aids for making material handling flow diagrams in manufacturing plants, warehouses and transportation terminals. It includes: a sturdy plastic-surface planning board with ¼-inch ruled squares; over 900 accurately scaled templates representing personnel and equipment; colored strips for indicating boundaries of buildings, stor-

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age areas, roadways and laydown areas; a dual-station Methods Engineering ruler; a plastic marking pencil; and rubber cement. Also furnished with the unit are two instruction booklets: one describes the proper method of preparing flow diagrams; and the other gives step-by-step directions for analyzing and improving material handling methods. The unit presents a quick method of visualizing the flow of materials for men who are experienced with material handling problems as well as for supervision personnel who are not familiar with the field.

PEOPLE

JACK S. LEE has been appointed a district sales manager of the Paper Container Division of Continental Can Co. He will make his headquarters in Kansas City, Mo. Mr. Lee formerly was associated with the Mono Service Co. for over fifteen years, prior to its being taken over by Continental Can Company in 1945.

GEORGE H. PRINGLE has been appointed Chief Engineer of The Mead Corp. He will direct the General Engineering Department, which is located in Chillicothe, Ohio. J. B. GOUGH, who was formerly Chief Engineer, will continue as Consulting Engineer in an advisory capacity to Mr. Pringle and the management.

CHARLES F. PFEIFER was named New York and New England Division manager of Olin Products Co., Inc., of New York City.

The newly-formed company is responsible for sale and distribution of Olin Cellophane, commercial production of which will begin in September.

Mr. Pfeifer comes to Olin Products Co. after two years in charge of the paper converting operation at Plastic Film Corp. of New York City. Previously, he was assistant sales manager in charge of machinery at John Waldron Corp., New Brunswick, N. J., for three years, and assistant to the general manager of Newton Falls Paper Mills, N. Y., for five years. He also spent more than five years with the operating division of U. S. Rubber Co.

DR. EDWARD D. LOCKE, chief of the forest utilization service in the Pacific Northwest forest and range experiment station at Portland, Ore., has been transferred to the forest products laboratory in Madison, Wis., where he will be chief of research in wood chemistry. ELMER E. MATSON of the division of forest management at the Portland station replaces Mr. Locke in the local office.

JOHN W. JORDAN, secretary of Brown Co., Berlin, N. H., has been elected vice-president and general counsel of the company.

K. CRABTREE, resident manager of Crabtree Mills Division, Howard Smith Paper Mills, Ltd., has retired after forty-six years' continuous service. Mr. Crabtree was presented with an oil painting of the mill painted by Mrs. E. K. Robinson, and a silver cigarette box, at a dinner recently given in his honor by fellow executives of the company.

He began his papermaking career when thirteen years old in the Alex. McArthur Co. paper mills in Joliette and became a machine tender when only seventeen, working twelve hours on daytime shift and thirteen hours on night shift. Later when his father erected his own mill near Joliette in 1906, he worked in various departments and became mill superintendent in 1916 about the time the Crabtree holdings were purchased by Howard Smith Paper Mills. In 1919 he was appointed mill manager and held that position until his retirement this year. He is a director of Canada Paper Co.

JOHN F. CORWIN, Koppers Co. executive, has been appointed chief of the Resins, Plastic Materials and Adhesives Section, Chemicals Branch of OPS.

Mr. Corwin is on loan from the chemical division of Koppers at Pittsburgh. He served with a division similar to his present assignment in the OPA.

B. F. PERKINS, JR., executive vice-president and general sales manager of the American Tissue Mills, Inc., has been appointed to the Tissue Advisory Committee of the Office of Price Stabilization.

CLARKE K. WALTER has been named manager of River Raisin Paper Co.'s Display Division. Since 1947, he has been production superintendent of the division. WARREN M. PELLOT, of the cost department, has been named assistant secretary-treasurer.

J. STANLEY BABBITT, W. GEORGE COWAN and A. L. MITCHELL have been elected to the board of directors of Gair Co. Canada Ltd. They have also been named vice-presidents of the company. All are from within the company and have lengthy service records.

Mr. Babbitt is also the president and general manager of Premier Paper Box Ltd., Montreal, a wholly-owned subsidiary of Gair Co. Canada Ltd.

SUPPLIERS

CRANE PACKING CO., Chicago is constructing new general offices and plant facilities.

DOMINION BRAKE SHOE CO., LTD. has elected Thomas E. Akers, president, and Maurice N. Trainer, Chairman of the Board. Kenneth T. Fawcett was appointed vice-president of the American Brakeblok and Kellogg divisions of the company.

WESTINGHOUSE ELECTRIC CORP. has started a novel program designed to stimulate discussion among all of its 105,000 employes on the benefits of the American way of life and the danger of losing those benefits.

In turn, employes are given an opportunity to present the program before outside groups of their friends and neighbors.

The program consists of two one-hour sessions for all Westinghouse employes in plants and offices throughout the country. In groups of not more than 20 persons at each meeting, all will complete the sessions this summer.

The first one-hour meeting is devoted equally to viewing a movie titled "In Our Hands" and to a discussion period. On the following day the session is divided 20 minutes for the movie and 40 minutes for discussion.

In presenting the program for outside groups, the full two hours can be scheduled for one meeting or the session may be shortened to one hour.

DILTS MACHINE WORKS, DIV., Black-Clawson Co., Fulton, N. Y., has appointed Raymond K. Hovel works manager. In this capacity he succeeds D. J. Kesterke who resigned in order to devote full time to other business interests. Mr. Kesterke had been with Dilts fourteen years serving as works manager for the past ten.

HEPPENSTALL CO. has awarded its President's Trophy as "salesman of the year" to David P. Williams, a representative in the Pittsburgh sales district.

INSUL-MASTIC CORP. OF AMERICA has named George A. Bulmer to the position of manager of the newly formed west coast branch. Mr. Bulmer's headquarters will be in Los Angeles.

PAUL LEWIS LABORATORIES, INC. have taken over the exclusive distribution of Pillsbury Mills recently developed Pre-Measured Amylase Units.

The soluble capsules were developed by Pillsbury and have been distributed exclusively by them for two years. Pillsbury has made a license arrangement under their pending patent application granting exclusive distribution rights to the Paul Lewis Laboratories.

DURALOY CO., Scottdale, Pa., producer of high alloy static and centrifugal castings, has appointed A. M. (Max) Miller as district manager of its Detroit Sales Office, located at 805 New Center Building. Mr. Miller assumed his new duties on June 15th. He comes from Scottdale where he was in Charge of Operations. Prior to this he represented the company in the Detroit District so is quite familiar with the territory and industrial requirements there.

WHEELCO INSTRUMENTS CO. has opened a new District Agency for the State of West Virginia; Engineering Products Co., Post Office Box 1107, Charleston 24, W. Va. The new office, under the direction of F. E. Anderson, has complete sales and service facilities for Wheelco recorders, controllers, and combustion safeguards.

SHIPPERS' CAR LINE CORP., coincident with the moving of the southern district sales office, from Shreveport to Houston, Texas, Albert H. Johnson, representative for Shippers' in that territory, is appointed sales manager, southern district. The move is effective June 20th, according to the announcement of Shippers' president, Samuel M. Felton.

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	May 19	May 26	June 2	June 9	June 16
1951	103.0	103.8	100.1	104.1r	101.9
	May 20	**May 27**	**June 3**	**June 10**	**June 17**
1950	97.3	97.3	92.6	96.4	97.3

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	92.6	95.6	96.7	95.4	96.4	97.7	85.3	99.6	96.1	101.0	99.6	91.2	95.8
1951	99.3	101.3	102.3‡	103.1‡	102.5‡								

‡ Preliminary.
r Revised.

COMPARATIVE YEARLY SUMMARIES

	1944	1945	1946	1947	1948	1949	1950	1951
Year to Date	88.6	88.9	100.4	105.5	99.9	88.1	95.6	101.8
Year Average	88.1	89.4	100.1	104.3	96.3	88.6	95.8	

PAPERBOARD OPERATING RATIOS†

	May 19	May 26	June 2	June 9	June 16
1950	106	102	100	102	103
	May 20	**May 27**	**June 3**	**June 10**	**June 17**
1951	92	93	83	94	93

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	88	92	91	92	91	94	82	100	96	102	101	95	94
1951	102	105	104	105	104								

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: The chart shows the ratio through December 1950 on the basis of 6-day capacity. Beginning with January 1951 the ratio is shown on the new basis of normal 6- and 7-day capacities. Corresponding weekly and monthly ratios for 1950 on the new basis, shown in the tables above, are somewhat lower.

Paperboard operating ratios continue on the basis of a 6-day week.

† Per cents of operation based on "inch-hours" reported to the National Paperboard Association.

FINANCIAL

American Car and Foundry Co. have declared a dividend of $2.00 per share on the common shares outstanding, payable July 16, 1951 to stockholders of record July 3, 1951.

Minnesota and Ontario Paper Co. has declared a quarterly cash dividend upon its common stock of fifty cents per share to stockholders of record at the close of business on June 29, payable on July 25.

Minnesota and Ontario Paper Co. has declared a dividend of 50c on common stock, payable July 25 to stockholders of record June 29.

Anglo-Canadian Pulp and Paper Mills Ltd. are making a secondary offering of 40,000 shares of stock at $33.50 per share.

OBITUARIES

Arthur J. Gervais, secretary of Chope Stevens Paper Co., Detroit, Mich., died June 18.

Ernest Charles Martin, 64, formerly divisional manager for Scott Paper Co., Philadelphia, Pa., for nine years and general sales manager of Interlake Tissue Mills, Toronto, Ont., in 1922, died June 22 at his home in Toronto. In 1927, he was president of the Saranac Pulp & Paper Co. He was also connected with other Canadian and American companies.

"EXCELSIOR" FELTS

The Trademark of Felts of Superior Quality for Every Grade of Pulp and Paper

KNOX WOOLEN COMPANY

CAMDEN, MAINE

CLEARING HOUSE

HELP WANTED

MEN WANTED—POSITIONS OPEN

We can place—night and day supts. for Fourdrinier machine mills on coarse papers and specialty papers; supt. also salesman for wet machine board mill; merchandising mgr.; graduate engineer for asst. supt. board mill; college educated power plant executive engineer; plant engineer, salary range $7500-$9000 year.

Master mechanics, plant engineers, electrical engineers and assistants; chemists and chemical engineers; head beater engineer, $5,000 a year; machine foremen. Cylinders and Fourdriniers; machine tenders and back tenders.

LIST YOUR CONFIDENTIAL APPLICATION WITH US to keep informed of attractive positions open in the pulp and paper mills.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston 8, Mass.
SPECIALISTS IN PLACING PULP AND PAPER MILL EXECUTIVES
J-29

Wanted: Supervisor for pulp and paper research group of 6 to 8 men in laboratory of upper midwest mfgr. of bleached and unbleached groundwood, sulphite and kraft pulps and printing and converting papers. Must be a graduate chemist or chemical engineer well grounded in paper chemistry and manufacturing processes. Prefer man 35 to 45 years old with both production and development exp. in above fields and a combination of a creative imagination with a practical approach to development problems. Paper coating exp. desirable. In reply give personal history, training, exp. and salary expected. Address Box 51-335 care Paper Trade Journal. J-13

AGGRESSIVE SALES ENGINEER

Opportunity to join well known established machinery firm. Technical ability and paper making background necessary. Knowledge of beating and pulping process and equipment desirable. Some sales experience or sales inclination helpful. Must be able to travel in territory. Tell us about yourself in your letter. Address Box 51-301 care Paper Trade Journal. TF

PLANT ENGINEER—Bldg. Materials and Plastic Floor-covering Manufacturer, new large-scale New Jersey plant. Applicants must have minimum 6 years plant experience in maintenance, operations and design. Must be familiar with wide variety of process plant equipment and utilities systems. Must be college graduate engineer. Please submit resume with reply. Box No. 51-298, care Paper Trade Journal. A-3

SUPERINTENDENT for Metropolitan New York Paper Converter. Must be thoroughly experienced with modern sheeting, rewinding and slitting operations. Excellent opportunity to progress with new and growing organization. Write, furnishing full particulars as to experience, age, salary desired and references. Replies held in strict confidence. Address Box 51-329 care Paper Trade Journal. J-29

Superintendent for Sac-paper mill; Night Superintendent, good paper maker; Four Mens, lightweight papers; Industrial Engineer; Several Chemists, with and without paper experience; Salesmen and sales manager for South.
Beater Engineers, Machine Tenders and Back Tenders.

Many other positions open.
Personnel Service Assoc., 118 State Street, Springfield 3, Mass.
J-29

WANTED

MASTER MECHANIC for progressive board mill. Good salary, good working conditions. Address Box 51-307 care Paper Trade Journal. J-29

SALARIED POSITIONS $3,500 to $35,000. We offer the original personal employment service (established 41 years). Procedure of highest ethical standards in individualized to your personal requirements. Identity covered; present position protected. Ask for particulars. R. W. BIXBY, INC. —117 Dun Bldg., Buffalo, 2, N. Y. TF

PROJECT ENGINEER—CALIFORNIA. 5 years experience. Processes and machinery for manufacture of floor coverings, wallboards, insulations, building materials. Permanent position. Salary open. Moving expenses allowance. PABCO PRODUCTS INC., 1350 Powell Street, Emeryville, California. Jy-13

WANTED — Machine Tenders and Back Tenders for corrugating medium and liner mill. Fourdinier and cylinder machines. Located in Western Pennsylvania; good working conditions; pleasant surroundings and very good labor relations. Call collect—Tarentum 1470. TARENTUM PRODUCTS CORPORATION, Tarentum, Pa. TF

MID-WESTERN FOURDRINIER SPECIALTY MILL has opening for experienced Production Superintendent. References required. Address Box 51-278 care Paper Trade Journal. A-31

WANTED — EXPERIENCED, COMPETENT PURCHASING AGENT for an eastern chipboard mill. Must be capable and fully experienced. Furnish details of experience, capabilities and references. Excellent opportunity. Address Box 51-153 care Paper Trade Journal. TF

WANTED — TOP GRADE SALESMANAGER for an eastern chipboard mill. Fully experienced and capable. Furnish details of experience, capabilities and references. Excellent opportunity. Address Box 51-78 care Paper Trade Journal. TF

WANTED—Experienced Trimmer Man to operate Seybold Trimmer. Please state age, experience and when available in first letter to FLOWER CITY TISSUE MILLS CO., 700 Driving Park Avenue, Rochester, 13, N. Y. J-29

MACHINE TENDERS WANTED by Fine Paper Mill in Eastern New York State. Address Box 51-328 care Paper Trade Journal. J-6

WANTED—Experienced Supervisor to take charge of wood yard. In reply, state qualifications and previous employer. Salaried position. Mid-Western Mill. Address Box 51-276 care Paper Trade Journal. J-32

WORKING SUPERINTENDENT for small, fast growing Eastern mill making lightweight specialties. Cylinder machine experience essential. State qualifications and salary expected. Address Box 51-87 care Paper Trade Journal. TF

PRODUCTION SUPERVISOR—For Eastern Wax Paper Manufacturer familiar with all operations. State qualifications, age, salary. Confidential. Address Box 51-289 care Paper Trade Journal. J-29

PLANT SUPERINTENDENT—For old established manufacturer of medium and heavy machinery. Must have thorough machine shop experience and record of proven ability. Age 40 to 50, salary high, resume required. Address Box 51-327 care Paper Trade Journal. J-29

WANTED — Experienced Trimmer Man for Sheridan Cutter for Paper Mill near New York City. Address Box 51-332 care Paper Trade Journal. J-6

LABORATORY CONTROL MAN—Must be experienced. Mill located in Western Pennsylvania making Corrugating Medium and Liner using Bogus Waste Material. Address Box 51-334 care Paper Trade Journal. J-29

SITUATIONS WANTED

SMALL MILL RESEARCH

Specialty: paper engineer will develop new or improved products for small mill on royalty basis. Successful sales and production experience. Laboratory equipment supplied. Write Box 51-298 c/o Paper Trade Journal. J-6

PLANT MANAGER—Paper and Board and their conversion; wants challenging opportunity. Highly successful in organization; administration; labor relations and high level production. Presently employed. Address Box 51-63 care Paper Trade Journal. J-29

CHEMIST—Experienced in solving mill problems, supervision of quality control on test liners, boxboards, corrugating medium and specialties. Ability well known in paper industry. Can head a laboratory staff. Willing to start at $4000. Address Box 51-303 care Paper Trade Journal. J-29

MANAGER or GENERAL SUPERINTENDENT—B.S. Degree, twenty four years in supervisory capacity manufacturing fine papers and specialties. Highly successful in organization, labor relations, maintenance, installation. Maximum production and quality at minimum cost. Motto—"It can be done." Excellent references. Address Box 51-313 care Paper Trade Journal. J-6

EXECUTIVE COST ACCOUNTANT—Age 37. Can set up budgets and standard cost system for paper mill or convertor. Full knowledge of inventory control and plant asset records. Address Box 51-333 care Paper Trade Journal. J-6

RATES FOR CLEARING HOUSE ADVERTISING

HELP WANTED—10c a word. Double rate for heavy face type. Minimum charge $3.50.

SITUATIONS WANTED—10c a word, double rate for heavy face type. Minimum charge $3.50. If repeated ½ rate will be charged for each consecutive repetition.

FOR SALE—10c a word. Double rate for heavy face type. Minimum charge $3.50.

WANTED—10c a word. Double rate for heavy face type. Minimum charge $3.50.

OPPORTUNITIES—10c a word. Double rate for heavy face type. Minimum charge $3.50.

Classified advertising space may also be purchased at $5.00 per single column inch. All classified advertisements are payable in advance.

If box number is used—75 cents additional

Address replies to advertisements appearing under Box Numbers in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 19, N. Y.

SITUATIONS WANTED

CHEMICAL ENGINEER—31, with good technical and commercial background available. Presently superintendent of stock preparation at midwestern kraft and sulphite specialty mill, in charge of both beating and bleaching. 10 years experience in selling and making various kinds and grades of paper. Member of SAPI. Resume and references available. Address Box 51-331 care Paper Trade Journal. J-13

BEATER ENGINEER wants position. Married, temperate habits. Accustomed to all grades. Can take full charge of beater room. Address Box 51-330 care Paper Trade Journal. J-13

FOR SALE

FOR SALE—65" Seybold Paper Cutter; 36" Slitter & Rewinder, 48" Sheeter with Layboy; 30" Waldron 6-color Wall Paper Printing Press; 29 x 40 Thomson Platen Die Cutter; 6" Brightwood Box Machine. Address Box 51-217 care Paper Trade Journal. TF

FOR SALE—1—Valley Iron Works Stock Inlet. Used with 133 inch wire making 10 pound to 40 pound paper. From 350 to 600 feet per minute. Print will be furnished interested parties. DUNN PAPER CO., Port Huron, Mich. J-13

FOR SALE

PAPER MILL MACHINERY FOR SALE

1—#10 Cameron Re-winder—84" Trim—40" Diameter Rolls back stands and shafts with or without variable speed drive.
1—Moore & White Cutter and Layboy with back stands and shafts, no drive.
1—Cranston 50" Undercut Trimmer in good condition—no drive.
1—Jones Majestic Jordan—Complete new ¼" Taxkle.
1—60" Octagonal Washer complete with faces. A number of cast iron beater tub parts—not complete.
1—20" Chain Conveyor Complete with chain sprockets and rakes—approximately 90 feet long.
2—Small Sturtevant Fans with friction and bearings.
1—Steel Clamshell for locomotive crane—good assable condition.
1—4-plate Packer Screen with plates.
4—Calender Rolls 8 inch to 9 inch diameter—88 inch face.

Address Box 51-224
care Paper Trade Journal
J-20

FOR SALE

• FOR SALE •

TWO WESTINGHOUSE DIRECT CURRENT MOTOR GENERATOR SETS

SUITABLE FOR SUPER CALENDERS

Two Synchronous Motors
200 HP Output, 100% P.F., 220 V
60 Cycles, 900 R.P.M., 2 Poles
3 Phase, 612 Amp Per Phase
Serials 2602024 and 2602023

With Direct Current Generators
Type SK, Frame 201
Compound Wound
200 K.W., 275 Volts, 728 Amps, 900 R.P.M.
Serials 2602034 and 2602931

Excellent Condition • $4,000 Each

C. E. Chenicek
NEO GRAVURE PRINTING CO., Inc.
601 West 26th Street
New York 1, New York

FOR SALE

1—Sandusky Couch Roll—126" drilled face x 22" diameter.
1—123" 3 bowl revolving reel.

BEARINGS
72—Top and bottom Dryer Bearings 7" diameter x 12" long.

BEATERS
1—Dilts Iron Tub Laboratory Beater. Beater roll 14" diameter x 10½" face.
1—Noble & Wood Cast Iron Beater—1000# capacity—roll newly refilled.

CALENDER STACKS
1—9 roll 68" Calender Stack.
1—3 roll pressure casender—32" x 108".
1—72" 4 roll calender stack. (Extra heavy duty).
1—54" Smoothing Calender Stack, 2 Iron Rolls, 2 Cotton Rolls.

CHEST
1—Cast Iron Stock Chest, 25' long x 6' high. (With agitator).

CHIPPER
1—96" Murray 4 knife Chipper—anti-friction bearings.

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
4—Jeffrey Hammermill.

CYLINDER MOLDS
2—30" diameter x 72" face.
1—36" diameter x 79" face
5—54" diameter x 54" face.
1—60" diameter x 96" face.
1—48" diameter x 72" face.
4—36" diameter x 78" face.
1—30" diameter x 92" face.
1—36" diameter x 72" face.

DRIVES
1—#54½ Reeves Drive.
1—#24 Reeves Drive
1—Reliance Electric Drive, complete with 5 gear head motors.
3—#3 Reeves Drives (totally enclosed).

V-BELT DRIVE
1—21½" diameter x 7½" face. 5 groove
1—16½" diameter x 7½" face. 5 groove. (With clutch).

DRYERS
1—Complete unit, consisting of 6 dryers, 30" diameter x 30" face, including frames, gears, anti-friction bearings.
7—24" diameter x 48" face.
1—48" diameter x 91" face.
2—30" diameter x 96½" face.
1—36" diameter x 142" face.
1—24" diameter x 130" face.
1—48" diameter x 70" face.
1—48" diameter x 82" face.
2—Dryers 48" diameter x 134" face.
1—24" diameter x 92½" face.
2—28" diameter x 48" face.
1—84" diameter x 49" face.
1—60" diameter x 60" face.
1—48" diameter x 60" face.
2—36" diameter x 66" face.
1—20" diameter x 61" face, complete with frames.
8—24" diameter x 60" face.

GUILLOTINE CUTTER
1—60" Cutter.

FLAT SCREENS
1—6 plate Sharrie Flat Screen
7—Packer, 12 plate, roller shoe type.

FRAMES
Vertical frames for 100 dryers, 48" diameter, with bearings.

JORDANS
1—Horne Jordan.
2—Noble & Wood Mammoth.

LIME SLUDGE FILTERS
2—IMPCO Lime Sludge Filters, vacuum type, 5' diameter x 4' face.

MOTORS
Write us regarding your requirements.

PRESSES
3—Sets Primary Presses, complete, 145" face. Anti-friction bearings. Also all types of rolls for 145" wet end.

PULLEYS
Various cone and grooved pulleys.

PULPERS
1—Jones Pulper. Complete with motor and drive.
1—Noble & Wood Pulper—Iron Tub.
1—Lannoye Pulper.

PUMPS
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.
4—Bartle Brothers circulating pumps, each 4,000 g.p.m.

REEL
1—123"—3 bowl Revolving Reel.

REFINERS
2—#1 Claflin Refiners.

ROLLS
Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

ROTARY SCREENS
1—#2 Bird Rotary Screen.
1—#3A Bird Rotary Screen.

SAVEALLS
1—#5 Bird Saveall.
2—Savealls, 36" diameter x 136" face cylinder molds, iron and vats.

SHEETERS
1—60" Moore & White Sheeter with Layboy and 10 roll backstand.

SHREDDERS
2—Daniels Rag Cutters.

SLITTERS & WINDERS
1—42" Cameron—Type 40-A B
1—119" 2 drum Waldron
2—112" Cameron—Type 18.
1—104" Beloit two drum winder.
1—42" Cameron Constant Tension with pneumatic control.
1—42" Cameron—Type 6.
1—62" Cameron—Type 6-S.
1—62" Cameron—Type 36-3A.
1—42" Johnstone Slitter.
1—92" Moore & White 4 drum winder.
1—42" Cameron—Type 10-10.
1—87 Cameron Type 10.
1—134 Cameron Type 10.

STOCK PUMPS
1—10 x 20 Sharrie Duplex.
1—7 x 16 Sharrie Duplex.
1—10 x 20 Triplex, with motor.
Advise us to your requirements.

SUCTION COUCH ROLL
1—Sandusky Couch Roll 128" drilled face x 22" diameter

SUCTION BOXES
2—136" face Suction Boxes.

THICKENER
1—IMPCO Thickener—Cylinder mold 36 x 78.

VACUUM PUMPS
1—H-82 Nash, for Fulton-Midwest System.
1—#4 Nash Hytor Vacuum Pump.

WET MACHINE
1—77" Rogers Wet Machine.

YANKEE DRYERS
1—48" Face x 84" Diameter, Frames & Bearings.
1—68" face x 60" diameter including frames and anti-friction bearings.

We are always in the market to purchase your surplus or idle machinery. What have you to offer?
Wanted Cylinder and Fourdrinier Machines (complete mills).

Paddy Ross, Pres. **J. J. ROSS COMPANY** Ben Kurz, Treas.
250 Frelinghuysen Ave. Tel.—Bigelow 3-3720 Newark 5, N. J.

FOR SALE

FOR SALE
PAPER MILL

—capable of producing newsprint, mimeo and groundwood specialties. Modern machinery and structures. Located in the Northeast. Manufacturers own groundwood. Abundance of raw materials. Principals only.

Address Box 5-337 care Paper Trade Journal. J-29

$750 BUYS
MUST MOVE IMMEDIATELY
One 75" WAXING MACHINE
With Reserve Tank AND
One 75" DOUBLE DRUM—
For Cutting Paper From Rolls
BLEYCO PAPER CORP.
415 W. 53th St., NY PLAZA 7-6388
J-29

FOR SALE

2—42" Moore & White Sheeters, one with Layboy.
48" and 46" Hamblet Sheeters.
58" Finley Sheeter, very reasonable.
100" Dillon Sheeter with 10-roll Back-Stand.
32" Cameron type 8 model 5 Slitter.
82" Cameron 26 Slitter.
42" Cameron 26-2A Slitter, like new.
32" Inman shear cut Slitter.
46" Kidder style CH Slitter, shear cut.
65" Sheridan Auto. Power Cutter.
57" Dexter Power Cutter.
70" 2-drum Upright Reel.
NEW Baling Presses, both hand and power.
NEW Hamblet Sheeters, any size, for any purpose.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 18.
(Plant at Stamford, Conn.)
TF

GOOD PAPER MILL EQUIPMENT

42" Cameron 26-2A Slitter, like new.
32" Cameron type 8 model 5 Slitter.
32" Inman shear cut Slitter.
42" Moore & White Sheeter with layboy.
46" Hamblet Sheeter.
58" Finley Sheeter, very reasonable.
92" Hamblet Sheeter with M & W Layboy.
100" Dillon Sheeter with 10-roll Back-Stand.
68" Oswego mill type Power Cutter.
74" Seybold 102 Auto. Power Cutter.
57" Brown & Carver Power Cutter.
75" Paper Reel.
Silver #13 Paper Shredder.
NEW "Famous" Balers, both hand & power.
NEW Hamblet Sheeters, any size.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 18.
(Plant at Stamford, Conn.) TF

For Sale: Very valuable asphalt laminating and coating machine 74" wide all electrical equipment. Immediately available. Rare opportunity. For inspection address or phone: Theo. Adams, 111 W. Washington, Randolph 6-4918. J-29

PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon Laboratory Coating and Treating and Flat Ream Measuring and Converting Machines. New improvement. THE MAYER MACHINE COMPANY, INC., 1313 Buffalo Road, Rochester, 11, N. Y. TF

FOR SALE

FOR SALE

1—84" 9-roll Supercalender Stack. Complete with drives.

J. J. ROSS COMPANY
250 Prelinghuysen Ave., Newark, N. J.
Tel BIgelow 3-3720 J-29

FOR SALE
Toilet Winders
2—72" Hudson-Sharp (Surface type winder)
1—84" Gissinger

J. J. ROSS COMPANY
250 Prelinghuysen Ave., Newark 5, N. J.
Tel BIgelow 3-3720 J-29

FOR SALE
82" Potdevin Squeeze Roll Waxing Machine

V-Belt drive and 15 H.P. General Electric motor equipment A1 condition. Immediate Delivery. Address Box 51-314 care Paper Trade Journal. HC

MACHINE COATED BOOK FOR SALE. 13-16" width rolls. Basis 40#. Large quantities. Send replies to Box 51-321 care Paper Trade Journal. J-6

FOR SALE—1—122" Heavy Duty Single Knife Horne Cutter, suitable for Board or Pulp. Address Box 51-275 care Paper Trade Journal. TF

FOR SALE—74" Knowlton Traveling Shear Cut-off Knife.—Bargain. Address Box 51-105 care Paper Trade Journal. TF

FOR SALE—175 HP Corliss Steam Engine with paper machine line shaft and pulleys. Address Box 51-326 care Paper Trade Journal. J-29

FOR SALE—250 HP 13" x 16" Erie City Twin Tangye Steam Engine. Address Box 51-324 care Paper Trade Journal. J-29

MOORE & WHITE SHEETER—100"—6 roll backstand. Complete layboy and splitting attachments. NU-PAKO, 1090 Myrtle Ave., Brooklyn, N. Y. Tel. CA 6-1612. J-20

FOR SALE—1—114" Slitter and rewinder—Cameron Type. NU-PAKO, 1090 Myrtle Ave., Brooklyn, N. Y. Tel. CA 6-1612. J-20

WANTED

Used Slitter & Rewinder Wanted
about 72".
Cameron preferred
State full details
Box #51-317 care Paper Trade Journal
J-29

WANTED

WANTED
CREPING MACHINE

37 to 40" wide—for handling foil back paper.

Address Box 51-336 care Paper Trade Journal. J-29

BOUGHT — SOLD
Soda Ash—Caustic Soda
Titaniums—Lithopone—Zinc Oxides
Glycols—Cellosolves—Ethanolamines
Bichromates—Dyes—Colors, etc.

CHEMICAL SERVICE CORPORATION
80-84 Beaver St., New York 5, N. Y.
J-29

WANTED

4—400 amp. Oil Circuit Breakers similar to Westinghouse Model F-124A. Must have interrupting capacity of 50,000 K.V.A., complete with instantaneous trip and indicating ammeter for 3 phase 2300 volt circuits.
6—S. A. Delon fuse disconnects for 2300 volts—400 amp.
1—1600 ampere blade disconnect for 3 phase 2300 volt circuit.
Address Box 51-287 care Paper Trade Journal
J-29

WANTED
Serviceable Grocery Bag Machine
8 through 20 lb. sizes.
Recent Model Potdevin preferred.
Address Box 50-450, care Paper Trade Journal, TF

SMALL PAPER MILL

in East desired as permanent investment. Plant consuming chemical pulps preferred.

Write Box 51-287 c/o Paper Trade Journal. J-29

WANTED—Brightwood Box Machine, Shredders, Evaporators, Generators and Boilers. Slitters, Cutters, Hydraulic presses, Sheridan Presses, Dryers. Address Box 51-88 care Paper Trade Journal. TF

WANTED—W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters Hydraulic presses, Sheridan Presses, Dryers. Address Box 51-89 care Paper Trade Journal. TF

WANTED—A good used combination slitter and rewinder, score cutting, 72" to 76" wide to rewind 30" plus. Address Box 51-305 care Paper Trade Journal. J-6

WANTED—Small Tissue Mill in the East. Address Box 51-300 care Paper Trade Journal. J-6

WANTED—One Pusey & Jones mortise gear, takes 72 tooth, 9" face cog. Address Box 51-323 care Paper Trade Journal. J-6

The SUPERINTENDENT'S NUMBER
of
Paper Trade Journal
will be
July 13, 1951

WHERE TO BUY

ABRASIVES
Monsanto Chemical Co.
Naugatuck Chemical Division of U. S. Rubber Co.
Norton Co.
Simonds Abrasive Co.

ADHESIVES
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E. I. Du Pont De Nemours & Co., Inc.
The Goodyear Tire & Rubber Company
Monsanto Chemical Co.
Morningstar, Nichol, Inc.
National Starch Products, Inc.
Nopco Chemical Co.
Plaskon Division, Libbey-Owens-Ford Glass Co.
Reichhold Chemicals, Inc.
Stein, Hall & Co., Inc.

AGITATORS
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Appleton Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
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D. J. Murray Mfg. Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.
Shartle Brothers Machine Co.

ADJUSTABLE SHAKE MOTION
Manchester Machine Co.

ADJUSTABLE TILTING MOTOR BASE
Lovejoy Flexible Coupling Co.

ALLOYS
Michigan Steel Casting Co.

ANTIFOAM
American Cyanamid Company Industrial Chemicals Division
National Aluminate Corp.
Nopco Chemical Co.

APRON CLOTH
Williams-Gray Co.

BAG MACHINES
Dilts Machine Works
Potdevin Machine Co.

BALL MILLS
F. L. Smidth & Co.

BARK BURNER
Combustion Engineering-Superheater, Inc.
Hoffl Company, Inc.
Nichols Engrg. & Research Corp.

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D. J. Murray Mfg. Co.
Valley Iron Works Co.

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E. D. Jones & Sons Co.
The Moore & White Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BASIC WEIGHT SCALES
Thwing-Albert Instrument Co.

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Black Clawson Company
E. D Jones & Sons Co.
Magnus Metal Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
SKF Industries
Stephens-Adamson Mfg. Co.
Timken Roller Bearing Co.
Valley Iron Works Co.

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The Appleton Machine Co.
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Morden Machines Co.
J. J. Ross Company
Ross Paper Machy. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

BED PLATES
Baker Brothers Mfg. Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Lukenweld Div., Lukens Steel Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BELTING
Allis-Chalmers Mfg. Co.
Goodrich, B. F., Co.
The Goodyear Tire & Rubber Company
Link Belt Company

BIN DISCHARGERS
Hoffl Company, Inc.
Stephens-Adamson Mfg. Co.

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Rohm & Haas Co.
Virginia Smelting Co.

BLEACHING APPARATUS
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Perkins & Sons, Inc., B. F.
Moore & White Co.
Niagara Alkali Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

BLOW PIPES & PITS
Carthage Machine Co.
Kalamazoo Tank & Silo Co.
Moore & White Co.
Murray Mfg. Co., D. J.
Walworth Company

BOILERS
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Combustion Engineering-Superheater, Inc.

BOTTOMS
Kalamazoo Tank & Silo Co.
Valley Iron Works Co.

BOXBOARD SCALES
Thwing-Albert Instrument Co.

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M. W. Jenkins Sons, Inc.
Gus Riedel & Son

BRUSHES
M. W. Jenkins Sons, Inc
Gus Reidel & Son
The Sandy Hill Iron & Brass Works
Smith Winchester Mfg. Co.
Weber, Herman G., & Co., Inc.

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Testing Machines, Inc.

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Beloit Iron Works
Black Clawson Company
Downingtown Mfg Co.
Farrel-Birmingham Co., Inc
Lobdell United Co.
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The Moore & White Co.
Perkins & Sons, Inc., B. F.
J. J. Ross Company
Ross Paper Machy, Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

CARRIER ROPE
Williams-Gray Co.

CASEIN
American Cyanamid Co.
Industrial Chem. Div.
Bunge Pulp & Paper Co.
Hercules Powder Co.

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The Bagley & Sewall Company
Black Clawson Company
Babcock & Wilcox Co.
Carthage Machine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Hamblett Machine Co.
Lobdell United Co.
Magnus Metal Corp.
Michigan Steel Casting Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg Co.
Valley Iron Works Co.
Walworth Company

CENTRIFUGAL MACHINERY
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Nichols Engrg. & Research Corp.
Ross, J. O., Engrg. Co.
Shartle Brothers Machine Co.

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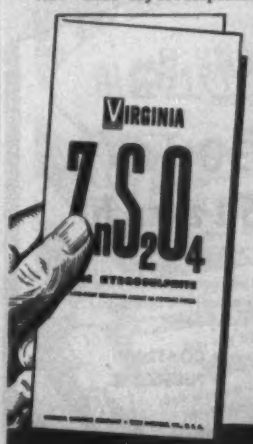

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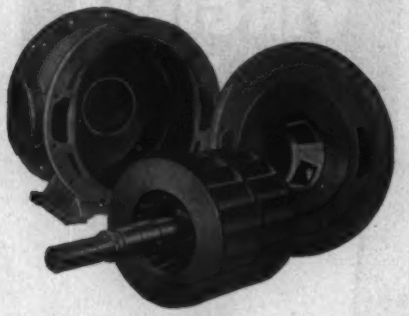

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Calco Chemical Co.
Calgon, Inc.
Diamond Alkali Co.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuffs Corp.
Geigy Co., Inc.
B. F. Goodrich Chemical Co.
Gotleeman & Co.
Hercules Powder Co.
Hooker Electrochemical Co.
The Kinsley Chemical Company
Monsanto Chemical Company
National Aluminate Corp.
Naugatuck Chemical Division of U. S. Rubber Co.
Niagara Alkali Company
Nopco Chemical Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Reichhold Chemicals, Inc.
Rohm & Haas Co.
Virginia Smelting Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

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E. D. Jones & Sons Co.
Kalamazoo Tank & Silo Co.
Shartle Bros. Mch. Co.

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E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Pittsburgh Plate Glass Co
Wyandotte Chemicals Corp., J. B. Ford Division

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The Bagley & Sewall Company
Black Clawson Company
Farrel-Birmingham Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.
Stephens-Adamson Mfg. Co.

COATING MACHINERY
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Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
The Mayer Machine Co., Inc.
Moore & White Co.
Posdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corporation, John Weber, Herman G., & Co., Inc.

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The Goodyear Tire & Rubber Company
Hercules Powder Co.
J. M. Huber Corp.
Monsanto Chemical Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Plaskon Division, Libbey-Owens-Ford Glass Co.
Reichhold Chemicals, Inc.
Wyandotte Chemicals Corp., Michigan Alkali Div.

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COMPLETE FOURDRINIER ROLL GRINDING
Manchester Machine Co

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Nash Engineering Co.
Roots-Connersville Blower Corp

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The Permutit Company

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Bird Machine Company
DeZurik Shower Company
Paper & Industrial Appliances

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Ebasco Services
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Main, Inc., Chas. T.
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Shartle Bros. Mch. Co.
J. E. Sirrine & Co.
Frank C. Vaughan
John Waldron Corp.
H. G. Weber & Co., Inc.

CONTINUOUS DIGESTER
Paper & Industrial Appliances

CONTROLLERS
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The Brown Instrument Co.

CONTROLS
The Brown Instrument Co.
Johnson Corp.
Poirier Control Co.
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

CONVERTING MACHINERY
The Bagley & Sewall Company
Egan, Frank W., & Co.
John Waldron Corp.
Dilts Machine Works

CONVEYORS
Black Clawson Company
Murray, D. J., Mfg. Co.
Ross Engineering Corp., J. O.
Shartle Brothers Mch. Co.
Stephens-Adamson Mfg. Co.

CORES
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Smith & Winchester Mfg. Co.
Sonoco Products Co.

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Amercoat Corporation

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Alpha Cellulose Corp.
Railway Supply & Mfg. Co.

COTTON PULP
Alpha Cellulose Corp.

COUCH ROLLS
Beloit Iron Works

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Black Clawson Company
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Lovejoy Flexible Coupling Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John

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Whiting Corp.

CURL TESTER
Thwing-Albert Instrument Co.

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Beloit Iron Works
Black Clawson Company
Dilts Machine Works
Gibbs-Brower Company, Inc
Graphic Arts International Corp.
Thomas W. Hall Co.
Harris-Seybold Co.
Jagenberg-Werke Akt. Ges.
Moore & White Co.
Perkins & Son, Inc., B. F.
The Sandy Hill Iron & Brass Works
Taylor, Stiles & Co.
The Smith & Winchester Mfg. Co.

CYLINDER MOULDS
Manchester Machine Co

CYLINDERS
M. W. Jenkins Sons, Inc.

DAMPENERS
Perkins & Son, Inc., B. F
Valley Iron Works Co.

DECKLE WEBBING
Williams-Gray Co.

DEFIBRATORS
American Defibrator Co.

DE-INKING
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General Dyestuff Corp.
Kinsley Chemical Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DEINKING CHEMICALS
E. I. Du Pont De Nemours & Co., Inc.
General Dyestuff Corp.
Kindey Chemical Co.
Nopco Chemical Co.

DE-MINERALIZING EQUIPMENT
Hungerford & Terry, Inc.
The Permutit Company

DEMULSIFIERS
Wyandotte Chemicals Corp., Michigan Alkali Div.

DENSOMETERS
Bunge Pulp & Paper Co.
W. & L. E. Gurley

DESIGN CONSTRUCTION
Ebasco Services

DETERGENTS
American Cyanamid Company Industrial Chemicals Division
Calgon, Inc.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

DEWAXING CHEMICALS
American Cyanamid Company Industrial Chemicals Division
General Dyestuff Corp.
Nopco Chemical Co.

DIFFERENTIAL SCALES
Thwing-Albert Instrument Co.

DIGESTERS
Babcock & Wilcox Co.
Blaw Knox Company
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.
Lukenweld
Paper & Industrial Appliances
Pusey & Jones Corp.

DISPERSING AGENTS
Calgon, Inc.
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

DOCTORS
The Bagley & Sewall Company
Bird Machine Company
Black Clawson Company
Downingtown Mfg. Co.
Lobdell United Co.
Lodding Engineering Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DOCTOR BLADES
The Bagley & Sewall Company
Bird Machine Company
Lodding Engrg. Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Simonds Saw & Steel Co.

DRIERS
The Bagley & Sewall Company
Black Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Lukenweld
The Moore & White Co.
Murray Mfg. Co., D. J.
J. J. Ross Company
Rod-Ray Mfg. Co., Inc.
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

DRILLED SUCTION COUCH ROLLS
Manchester Machine Co.

DRILLED SUCTION DRUM ROLLS
Manchester Machine Co.

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Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Bird Machine Co.
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Farrel-Birmingham Co.
General Electric Company
Gibbs-Brower Company, Inc.
Moore & White Co.
Murray, D. J., Mfg. Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.
Stephens-Adamson Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

DRUM WINDERS
Manchester Machine Co.

DRYER DRAINAGE
Stickle Steam Specialties Co.

DRYER ROLL PYROMETER
Thwing-Albert Instrument Co.

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Downingtown Mfg. Co.
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M. W. Jenkins Sons, Inc.
E. D. Jones & Son Co.
Moore & White Co.
D. J. Murray Mfg. Co.
John Waldron Corp.

DUSTING BRUSHES
M. W. Jenkins Sons, Inc.

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American Cyanamid Company, Calco Chemical Div.
Bunge Pulp & Paper Co.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
General Dyestuffs Corp.
National Aniline Division, Allied Chemical & Dye Corp.

ELECTRIC HYGROMETER
Thwing-Albert Instrument Co.

EMBOSSING MACHINES
Dilts Machine Works
Egan, Frank W., & Co.
John Waldron Corp.

EMBOSSING ROLLS
The Appleton Machine Co.
Gibbs-Brower Company, Inc.
Holyoke Machine Co.
Northern Engraving & Mch. Co.
B. F. Perkins & Son, Inc.
John Waldron Corp.
Wheeler Rail Co.

EMULSIFIERS
General Dyestuff Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

ENZYMES
Rohm & Haas Co.
Vanderbilt Co., R. T.

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Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

EXPANDERS
Mount Hope Machinery Co.

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B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

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Heft Company, Inc.
Merrick Scale Mfg. Co.
The Permutit Company
Stephens-Adamson Mfg. Co.

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Asten-Hill Mfg. Co.
Draper Bros. Corp.
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Lockport Felt Co.
Morey Paper Mill Supply Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.
Williams-Gray Co.

FELT CLEANERS
Calgon, Inc.
General Dyestuff Corp.
Nopco Chemical Co.

FELT CONDITIONERS
Bird Machine Co.
The Sandy Hill Iron & Brass Works

FELT GUIDES
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Waldron Corp., John

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FILTERS
Bird Machine Company
Holyoke Machine Co.
J. M. Huber Corp.
Hungerford & Terry, Inc.
Johnson Corp.
Moore & White Co.
I. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Walworth Company

FITTINGS
The Bagley & Sewall Company
Crane Company
Shartle Bros. Mch. Co.
Walworth Company

FLEXIBLE COUPLINGS
Egan, Frank W., & Co.
Lovejoy Flexible Coupling Co.
John Waldron Corp.

FLOORING, GRATING AND TREADS
The Goodyear Tire & Rubber Company
Norton Co.

FLOW BOXES, STAINLESS-CLAD
Lukens Steel Co.
The Sandy Hill Iron & Brass Works

FORK LIFT TRUCKS
Clark Equipment Company Industrial Truck Division
Elwell Parker Elec. Co.
Towmotor Corp.

FORMATION TESTERS
Thwing-Albert Instrument Co.
Williams Apparatus Co., Inc.

FOURDRINIERS
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Black Clawson Company
Downingtown Mfg. Co
The Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

FREENESS TESTERS
Testing Machines, Inc.
Williams Apparatus Co.

FURNACES
Hoft Company, Inc.

GASKETS
The Goodyear Tire & Rubber Company

GEARS
The Bagley & Sewall Company
Black Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.
Western Gear Works

GRAPPLES
Blaw-Knox Company

GRAVITY FILTERS
Holyoke Machine Co.

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell United Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

GRINDING WHEELS
Norton Company
Simonds Abrasive Co.

GUIDES
The Bagley & Sewall Company
Egan, Frank W., & Co.
Gilbert & Nash Co.
The Moore & White Co.
Mount Hope Machinery Co.
John Waldron Corp.

GUMMING MACHINES
Dilts Machine Works
Egan, Frank W., & Co.
The Sandy Hill Iron & Brass Works

GUMS
National Starch Products, Inc.
Stein-Hall Co., Inc.

HEAT EXCHANGERS AND RECOVERY SYSTEMS
Stickle Steam Specialties Co.
Westinghouse Electric Corp.

HEATING, VENTILATING & AIR CONDITIONING
The Appleton Machine Co.
E. D. Jones & Sons Co.
General Electric Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., I. O.
Stickle Steam Specialties Co.
Valley Iron Works Co.

HOSE (Air, Water, Suction, etc.)
The Goodyear Tire & Rubber Company

HUMECTANTS
Aktivin Division, Heyden Chemical Corp.
Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

IMPREGNANTS
American Cyanamid Company Industrial Chemicals Division
B. F. Goodrich Chemical Co.

INDENTING MACHINES
Dilts Machine Works

INDUSTRIAL TRACTORS
Clark Equipment Company Industrial Truck Division
Towmotor Corp.

INFOMETER
Thwing-Albert Instrument Co.

INSTRUMENTS, TESTING AND MEASURING
Brown Instrument Co.
Bunge Pulp & Paper Co.
Cambridge Instrument Co.
General Electric Company
W. & L. E. Gurley
B. F. Perkins & Son
Photovolt Corp.
Taylor Instrument Cos.
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Williams Apparatus Co.

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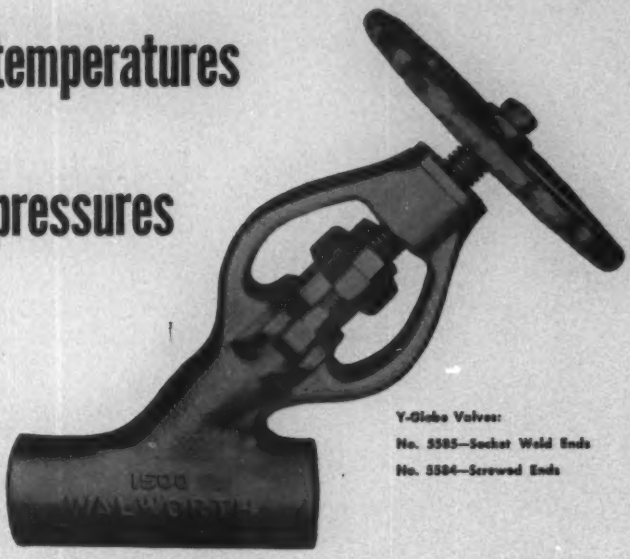

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